



[6450-01-P]

DEPARTMENT OF ENERGY

10 CFR Part 430

[Docket Number EERE-2012-BT-STD-0022]

RIN 1904-AC78

**Energy Conservation Program for Consumer Products: Energy Conservation Standards
for Residential Water Heaters**

AGENCY: Office of Energy Efficiency and Renewable Energy, DOE.

ACTION: Notice of proposed rulemaking and announcement of public meeting.

SUMMARY: The Energy Policy and Conservation Act of 1975 (EPCA), as amended, prescribes energy conservation standards for various consumer products and certain commercial and industrial equipment, including residential water heaters. EPCA also requires the U.S. Department of Energy (DOE) to determine whether more stringent amended standards would be technologically feasible and economically justified, and would save a significant amount of energy. Accordingly, DOE established amended energy conservation standards for several classes of residential water heaters in an April 2010 final rule. Subsequent to the publication of

that final rule, a number of utility companies brought forth concerns regarding the amended energy conservation standard levels for electric storage water heaters and the impact of these standards on electric thermal storage programs that utility companies administer to manage peak load. In this document, DOE proposes to establish a waiver process that will mitigate the concerns of utility companies regarding the implementation of the April 2010 standard levels by allowing for the manufacture of certain large-volume electric storage water heaters provided that they meet a set of conditions discussed in this proposed rule. The document also announces a public meeting to receive comment on the proposed waiver process and criteria for obtaining a waiver.

DATES: Meeting: DOE will hold a public meeting on Friday, March 15, 2013, from 9:00 a.m. to 1:00 p.m., in Washington, DC. The meeting will also be broadcast as a webinar. For information about the public meeting and webinar, see section V, “Public Participation.”

Comments: DOE will accept comments, data, and information regarding this notice of proposed rulemaking (NPRM) before and after the public meeting, but no later than **[INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. See section V, “Public Participation,” for details.

ADDRESSES: The public meeting will be held at the U.S. Department of Energy, Forrestal Building, Room 8E-089, 1000 Independence Avenue, SW., Washington, DC 20585. To attend, please notify Ms. Brenda Edwards at (202) 586–2945. For more information, refer to section V, “Public Participation.”

Interested persons are encouraged to submit comments using the Federal eRulemaking Portal at www.regulations.gov. Follow the instructions for submitting comments. Alternatively, interested persons may submit comments, identified by docket number EERE-2012-BT-STD-0022 and/or RIN 1904-AC78, by any of the following methods:

1. Federal eRulemaking Portal: www.regulations.gov. Follow the instructions for submitting comments.
2. E-mail: ResWaterHtrsRFI-2012-STD-0022@ee.doe.gov. Include the docket number and/or RIN in the subject line of the message. Submit electronic comments in WordPerfect, Microsoft Word, PDF, or ASCII file format, and avoid the use of special characters or any form of encryption.
3. Mail: Ms. Brenda Edwards, U.S. Department of Energy, Building Technologies Program, Mailstop EE-2J, 1000 Independence Avenue, SW., Washington, DC, 20585-0121. If possible, please submit all items on a compact disc (CD), in which case it is not necessary to include printed copies.
4. Hand Delivery/Courier: Ms. Brenda Edwards, U.S. Department of Energy, Building Technologies Program, 950 L'Enfant Plaza, SW., Suite 600, Washington, DC, 20024. Telephone: (202) 586-2945. If possible, please submit all items on a CD, in which case it is not necessary to include printed copies.

Written comments regarding the burden-hour estimates or other aspects of the collection-of-information requirements contained in this proposed rule may be submitted to Office of

Energy Efficiency and Renewable Energy through the methods listed above and by e-mail to Chad_S_Whiteman@omb.eop.gov.

Instructions: All submissions received must include the agency name and docket number and/or RIN for this rulemaking. No telefacsimilies (faxes) will be accepted. For detailed instructions on submitting comments and additional information on the rulemaking process, see section V of this document (Public Participation).

Docket: The docket is available for review at <http://www.regulations.gov>, including Federal Register notices, public meeting attendee lists and transcripts, comments, and other supporting documents/materials. All documents in the docket are listed in the <http://www.regulations.gov> index. However, not all documents listed in the index may be publicly available, such as information that is exempt from public disclosure. A link to the docket web page can be found at: <http://www.regulations.gov/#!docketDetail;D=EERE-2012-BT-STD-0022>. See section V, “Public Participation,” for further information on how to submit comments through www.regulations.gov.

FOR FURTHER INFORMATION CONTACT: Ms. Ashley Armstrong, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Building Technologies, EE-2J, 1000 Independence Avenue, SW., Washington, DC 20585-0121. Telephone: (202) 586-6590. E-mail: Ashley.Armstrong@ee.doe.gov.

Mr. Ari Altman, U.S. Department of Energy, Office of the General Counsel, GC-71,
1000 Independence Avenue, SW., Washington, DC 20585-0121. Telephone: (202) 287-6307.

E-mail: Ari.Altman@hq.doe.gov .

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I. Summary of the Proposed Rule

DOE believes that electric thermal storage (ETS) programs involving water heaters provide numerous benefits to consumers, utilities, and the Nation, and that an alternative approach to energy conservation standards for certain, limited electric water heaters appears to be warranted in order to ensure the viability of these programs. After considering several options, DOE determined that a waiver process is the most appropriate, and thus, is proposing to adopt such a process in this notice of proposed rulemaking (NPRM). The proposed process would allow any manufacturer of electric water heaters, any electric utility company, or a combination of the two, to request a waiver granting exemption from the energy conservation standards established in an April 16, 2010 final rule (75 FR 20112; referred to hereinafter as the “April 2010 final rule”) for certain electric water heaters with rated storage volumes greater than 55 gallons. Each waiver granted by the U.S. Department of Energy (DOE), would allow, for a one-year period, manufacturers to produce limited numbers of electric water heaters with rated storage volumes above 55 gallons exclusively for the purpose of installation in residences enrolled in a specific utility company ETS program. Parties would be allowed to apply for additional one-year waivers in subsequent years. This proposed rule, if adopted, or the granting of a waiver under this rule, would not amend the energy conservation standard otherwise applicable to electric water heaters with rated storage volumes above 55 gallons.

The following sections include: 1) a description of DOE’s statutory authority for setting energy conservation standards for residential water heaters; 2) a discussion of the standards promulgated in the April 2010 final rule and concerns of utility companies regarding those standards; 3) a summary of the comments received in response to DOE’s June 13, 2012 request for information (RFI) on this topic (77 FR 35299; hereinafter referred to as the “June 2012 RFI”)

and DOE's responses to those comments, including a discussion of the appropriate mechanism to address the concerns of utility companies; and 4) a description of the waiver process that DOE proposes to establish.

II. Introduction

The following section briefly discusses the statutory authority underlying DOE's standards for residential water heaters and this NPRM, as well as some of the relevant historical background regarding the establishment of standards for residential water heaters.

A. Authority

Title III, Part B¹ of the Energy Policy and Conservation Act of 1975 ("EPCA" or "the Act"), Pub. L. 94-163 (42 U.S.C. 6291-6309, as codified) sets forth a variety of provisions designed to improve energy efficiency and establishes the Energy Conservation Program for Consumer Products Other Than Automobiles,² a program covering most major household appliances (collectively referred to as "covered products"), which includes the types of residential water heaters that are the subject of this NPRM. (42 U.S.C. 6292(a)(4))

Under EPCA, this program generally consists of four parts: 1) testing; 2) labeling; 3) establishing Federal energy conservation standards; and 4) certification and enforcement procedures. The Federal Trade Commission (FTC) is primarily responsible for labeling consumer products, and DOE implements the remainder of the program. Subject to certain criteria and conditions, DOE is required to develop test procedures to measure the energy

¹ For editorial reasons, upon codification in the U.S. Code, Part B was redesignated as Part A.

² All references to EPCA in this document refer to the statute as amended through the Energy Independence and Security Act of 2007, Pub. L. 110-140 (Dec. 19, 2007).

efficiency, energy use, or estimated annual operating cost of each covered product. (42 U.S.C. 6293) Manufacturers of covered products must use the prescribed DOE test procedure as the basis for certifying to DOE that their products comply with the applicable energy conservation standards adopted under EPCA and when making representations to the public regarding the energy use or efficiency of those products. (42 U.S.C. 6293(c) and 6295(s)) Similarly, DOE must use these test procedures to determine whether the products comply with standards adopted pursuant to EPCA. Id. The DOE test procedures for residential water heaters currently appear at Title 10 of the Code of Federal Regulations (CFR) part 430, Subpart B, Appendix E.

EPCA, as codified, contains what is known as an “anti-backsliding” provision, which prevents the Secretary from prescribing any amended standard that either increases the maximum allowable energy use or decreases the minimum required energy efficiency of a covered product. (42 U.S.C. 6295(o)(1)) Also, the Secretary may not prescribe an amended or new standard if interested persons have established by a preponderance of the evidence that the standard is likely to result in the unavailability in the United States of any covered product type (or class) of performance characteristics (including reliability), features, sizes, capacities, and volumes that are substantially the same as those generally available in the United States. (42 U.S.C. 6295(o)(4))

B. Background

1. Current Standards

Before being amended by the National Appliance Energy Conservation Act of 1987 (NAECA; Pub. L. 100-12), Title III of EPCA included residential water heaters as covered products. NAECA’s amendments to EPCA established energy conservation standards for residential water heaters. (42 U.S.C. 6295(e)(1); 42 U.S.C. 6295(e)(4)) DOE initially amended

the statutorily-prescribed standards for water heaters in 2001 (66 FR 4474 (Jan. 17, 2001)) and amended standards for water heaters for a second time in the April 2010 Final Rule.

The energy conservation standards for residential water heaters in the April 2010 Final Rule will apply to products manufactured on or after April 16, 2015. 75 FR 20112. The amended energy conservation standards consist of minimum energy factors³ (EF) that vary based on the rated storage volume of the water heater, the type of energy it uses (i.e., gas, oil, or electricity), and whether it is a storage, instantaneous, or tabletop model. 10 CFR 430.32(d). The currently applicable water heater energy conservation standards, as well as those that will be applicable starting April 16, 2015, are set forth in Table II.1 below. Of particular relevance for this NPRM, on April 16, 2015, electric water heaters with a rated storage volume above 55 gallons will be required to have an energy factor of at least $2.057 - (0.00113 \times \text{Rated Storage Volume in gallons})$. Such a level is currently achievable only by using heat pump water heater technology and cannot be achieved in electric water heaters that rely solely on electric resistance elements.

³ Energy factor is a measure of overall water heater efficiency that accounts for efficiency during active, standby, and cyclical operation.

Table II.1 Energy Conservation Standards for Residential Water Heaters

Product class	Energy factor as of January 20, 2004	Energy factor as of April 16, 2015
Gas-fired Water Heater	0.67 – (0.0019 × Rated Storage Volume in gallons)	For tanks with a Rated Storage Volume at or below 55 gallons: EF = 0.675 - (0.0015 × Rated Storage Volume in gallons).
		For tanks with a Rated Storage Volume above 55 gallons: EF = 0.8012 - (0.00078 × Rated Storage Volume in gallons).
Oil-fired Water Heater	0.59 - (0.0019 × Rated Storage Volume in gallons)	EF = 0.68 - (0.0019 × Rated Storage Volume in gallons).
Electric Water Heater	0.97 - (0.00132 × Rated Storage Volume in gallons)	For tanks with a Rated Storage Volume at or below 55 gallons: EF = 0.960 - (0.0003 × Rated Storage Volume in gallons).
		For tanks with a Rated Storage Volume above 55 gallons: EF = 2.057 - (0.00113 × Rated Storage Volume in gallons).
Tabletop Water Heater	0.93 - (0.00132 × Rated Storage Volume in gallons)	EF = 0.93 - (0.00132 × Rated Storage Volume in gallons).
Instantaneous Gas-fired Water Heater	0.62 - (0.0019 × Rated Storage Volume in gallons)	EF = 0.82 - (0.0019 × Rated Storage Volume in gallons).
Instantaneous Electric Water Heater	0.93 - (0.00132 × Rated Storage Volume in gallons)	EF = 0.93 - (0.00132 × Rated Storage Volume in gallons).

2. Utility Concerns with the April 2010 Final Rule for Electric Storage Water Heaters

Subsequent to the publication of the April 2010 Final Rule, several stakeholders (i.e., National Rural Electric Cooperative Association (NRECA), PJM Interconnection (PJM), American Public Power Association (APPA), and Steffes Corporation) indicated to DOE their concerns about the interaction of the amended standards in the April 2010 final rule and the use of electric storage water heaters with tanks having greater than 55 gallons of rated storage

volume (referred to hereinafter as “large-volume” electric storage water heaters) used in ETS programs. Utilities use ETS programs, sometimes also known as load shifting or demand response programs, to manage peak demand load by limiting the times when certain appliances are operated. ETS programs typically allow the utility to control the appliance remotely to allow operation of the appliance only during off-peak hours. During off-peak operation, the electricity consumed is stored by the appliance as thermal energy for use during peak hours when it is not allowed to operate. Large-volume electric storage water heaters are a key component of utility ETS programs that target electric water heaters because these larger-volume products allow for the storage of enough hot water to meet consumer usage during peak demand times when the water heater would not be allowed to turn on.

As shown in Table II.1 and noted above, the April 2010 Final Rule established an energy conservation standard that would effectively require the use of heat pump technology to meet the minimum energy conservation standard for large-volume electric storage water heaters. Utility companies presented concerns about the feasibility of continuing ETS programs without the use of large-volume electric resistance water heaters (ERWHs). Utilities believe the practicability of heat pump water heaters (HPWHs) are such that HPWHs may not be able to fill the same role as large-volume ERWHs in ETS programs. (The capability of HPWHs or multiple small-volume (i.e., storage volume of 55 gallons or less) water heaters to serve the needs of ETS programs is discussed further in section 2.) In light of the perceived lack of viable alternatives to large volume ERWHs for ETS programs, utility companies are concerned that participation in ETS programs may be reduced or eliminated after the standards take effect in 2015, which would eliminate the numerous benefits to consumers, utilities, and the Nation resulting from ETS programs. (See section 1 for discussion of the benefits from ETS programs.) Because of their

concerns, utilities requested that DOE consider allowing for the manufacture of large-volume ERWHs solely for ETS applications.

3. June 2012 Request for Information

To seek feedback from interested parties related to the issues raised by utility companies, DOE published the June 2012 RFI. 77 FR 35299, June 13, 2012. The RFI described utility ETS programs for water heaters and the utility's concerns over the amended standard levels for electric storage water heaters with storage volumes above 55 gallons, and sought comment on these topics as well as a number of related issues. Specifically, DOE requested comment on 1) the penetration of ETS programs and the impacts of such programs on consumers and the Nation; 2) the impacts of the April 2010 standard levels on utility ETS programs; 3) information on any feature or features for residential water heaters used in ETS programs that are unique to those water heaters and whether such feature(s) would justify a separate standard from other residential water heaters; and 4) information on potential solutions that would resolve the concerns of utilities that administer ETS programs for residential water heaters and require the use of large-volume electric storage water heaters, including several potential approaches identified in the RFI. 77 FR 35304.

DOE received 127⁴ comments from interested parties, including 109 from individual utility companies or utility associations (including the electric power research institute (EPRI)), 6 from manufacturers, 1 from an individual efficiency advocate, 1 comment from a trade association, 4 comments from U.S. Congressmen, and 3 joint comments – 2 joint comments from multiple utilities, one of which also included a manufacturer of ETS controls (referred to as the

⁴ In total there were 155 filings, but 26 comments were either exact duplicates or data supplements, so they are not included in the final count. Additionally two commenters submitted multiple filings with generally the same ideas expressed in each filing, and were only counted once in the final count.

“Joint Utilities comment”) and one of which did not (referred to as the “Joint Utilities Supplemental comment”), 1 joint comment from several efficiency advocates (referred to as the “Joint Efficiency Advocates comment”), and 1 joint comment from efficiency advocates and a utility company located in the northwestern U.S. (referred to as the “Northwest Advocates comment”).⁵ The utilities who responded to the June 2012 RFI serve approximately 5.3 million⁶ customers, of which approximately 1.7 million⁷ currently utilize electric resistance water heaters, and approximately 630,000⁸ currently participate in ETS programs. The responses generally centered on recommendations for DOE’s path forward and whether heat pump water heaters are a viable alternative to electric resistance water heaters for ETS programs. The comments helped DOE to formulate the proposals in this NPRM and are discussed in section A.

⁵ One joint comment was received from four utilities/associations – PJM, NRECA, APPA, Edison Electric Institute (EEI) – as well as Steffes Corporation (Steffes), which manufactures thermal storage water heater controls. This is referred to as the “Joint Utilities comment” in this document. A supplemental comment to this joint comment was received from the four utilities only (*i.e.*, PJM, NRECA, APPA, and EEI), which is referred to as the “Joint Utilities Supplemental Comment.” One joint comment was from three efficiency advocates, the American Council for an Energy Efficient Economy (ACEEE), Natural Resources Defense Council (NRDC), and Appliance Standards Awareness Project (ASAP). This comment is referred to as the “Joint Efficiency Advocates comment” in this document. One joint comment was from three stakeholders – Northwest Energy Efficiency Alliance (NEEA) and the Northwest Power and Conservation Council (NPCC), and the Bonneville Power Administration (BPA) utility. This comment is referred to as the “Northwest Advocates comment” in this document.

⁶ In instances where both a group of cooperatives and its individual cooperative members gave figures, only the figures from the group of cooperatives were counted to avoid double counting. This includes figures provided by: Corn Belt, Dairyland, East River, ECSC, Dakota Electric Association, East Central, Federated, Goodhue, Kandiyohi, McLeod, Minnesota Valley, Nobles, Stearns Wright-Hennepin, Northwest Iowa Power, Buckeye Power, Rappahannock, PowerSouth, Lower Valley, Wabash, Cass County, Powell Valley, Tri-State, NOVEC, Black Hills, Verendrye, Lake Country, Mountain Electric, Leavenworth-Jefferson, Thumb Electric, SCIREC, Jackson County, Duck River, Shenandoah Valley, Adams, Tri-County Rural., Habersham Electric, Flint, Dakota Valley, Northern Plains, Aurelia, United Electric

⁷ In instances where both a group of cooperatives and its individual cooperative members gave figures, only the figures from the group of cooperatives were counted to avoid double counting. This total includes figures provided by: Farmers Electric, Midland, Dairyland, East River, ECSC, Great River, NIPCO, PowerSouth, Lower Valley, Bristol, Central Georgia EMC, Jackson County, Duck River, Shenandoah Valley, Adams, Shelby Electric, Flint, Aurelia.

⁸ In instances where both the distribution cooperative and its individual cooperative members gave figures, only the distribution cooperatives figures were counted to avoid double counting. This number includes figures from: Farmers Electric Cooperative, Corn Belt, Dairyland, East River, ECSC, Connexus, Dakota Electric Association, East Central, Federated, Goodhue, Itasca-Mantrap, Kandiyohi, McLeod, Minnesota Valley, Nobles, Stearns, Wright-Hennepin, NIPCO, Buckeye, Rappahannock, PowerSouth, Lower Valley, Wabash, Cass County, Bristol Tennessee Essential Services, Powell Valley Electric Cooperative, Central Georgia EMC, Otter Tail, Black Hills, Verendrye, Mountain Electric, Leavenworth-Jefferson, Thumb, SCIREC, Jackson County, Duck River, Shenandoah Valley, Adams, Shelby Electric, Habersham, Flint, Dakota Valley, Northern Plains, Aurelia, United Electric

III. Discussion

A. Comments Received in Response to June 2012 RFI

As noted, DOE received 127 unique comments in response to the June 2012 RFI. The comments focused on four main issues: 1) whether DOE should take action to address the utility company concerns and the benefits of ETS programs; 2) the technological capability of alternatives to large-volume ERWHs to be utilized in ETS programs; 3) the potential for implementing a waiver program to allow the manufacture of certain water heaters specifically for use in ETS programs; and 4) the potential for implementing a separate product class for water heaters used in ETS programs (i.e., “grid-interactive” water heaters). The comments and DOE responses related to these four topics are summarized in sections 1 through 4 immediately below.

1. Whether DOE Should Take Action

Of the 127 comments received by DOE, 120 recommended that DOE should take some action to mitigate the issue that the April 2010 standard would potentially cause for utility ETS programs. (See section 2 for a brief description of the utility concerns.) (Buckeye Power, Inc. (Buckeye), No. 3 at p. 1; Codington-Clark Electric Cooperative (Codington-Clark), No. 4 at pp. 1-3; Rappahannock Electric Cooperative (Rappahannock), No. 5 at pp. 1-3; Northern Plains Electric Cooperative (Northern Plains), No. 6 at p. 1; Itasca-Mantrap Cooperative Electrical Association (Itasca-Mantrap), No. 7 at pp. 1-2; Northwest Iowa Power Cooperative (Northwest Iowa Power), No. 8 at p. 1; PowerSouth Energy Cooperative (Powersouth), No. 10 at pp. 1-3; Barron Electric Cooperative (Barron), No. 11 at p. 2; Clark Electric Cooperative (Clark), No. 13 at p. 1; Woodbury County Rural Electric Cooperative (Woodbury), No. 14 at p. 1; North West

Rural Electric Cooperative (North West), No. 15 at p. 1; Bayfield Electric Cooperative (Bayfield), No. 16 at p. 2; Union County Electric Cooperative (Union County), Inc., No. 17 at p. 1; Allamakee-Clayton Electric Cooperative (Allamakee-Clayton), No. 18 at p. 1; Lower Valley Energy, No. 19 at p. 1; AO Smith, No. 20 at p. 1; Wabash Valley Power (Wabash), No. 21 at p. 1; Heartland Power Cooperative (Heartland), No. 22 at p. 1; South Central Electric Association (South Central), No. 23 at p. 1; Cass County Electric Cooperative (Cass County), No. 24 at p. 1; East River Electric Power Cooperative (East River), No. 25 at p. 1; Richland Electric Cooperative (Richland), No. 26 at p.1; Lyon-Lincoln Electric Cooperative, No. 27 at pp. 1-3; Central Electric Power Cooperative (Central), No. 28 at p. 1; Tri-County Electric Cooperative (Tri-County), No. 29 at pp. 1-4; Price Electric Cooperative (Price), No. 30 at p. 1; Bristol Tennessee Essential Services (Bristol), No. 31 at pp. 1-2; FEM Electric (FEM), No. 32 at p. 1; The Berkeley Electric Cooperative (BEC), Inc., No. 33 at p. 1; Powell Valley Electric Cooperative (Powell Valley), No. 34 at p. 1; Humboldt County Rural Electric Cooperative (Humboldt), No. 35 at p. 1; Dakota Electric, No. 36 at p. 4; Nishnabotna Valley Rural Electric Cooperative (Nishnabotna Valley REC), No. 37 at p. 1; Corn Belt Power Cooperative (Corn Belt), No. 39 at p. 1; Clay-Union Electric Corporation (Clay-Union), No. 40 at p. 1; Great River Energy (Great River), No. 41 at p. 1; Central Georgia Electric Membership Corporation (Central Georgia EMC), No. 42 at p. 1; Otter Tail Power Company (Otter Tail), No. 44 at p. 1; Electric Cooperatives of South Carolina (ECSC), No. 45 at p. 1; Aiken Electric Cooperative (Aiken), Inc., No. 46 at p. 1; Connexus Energy (Connexus), No. 47 at p. 1; Dairyland Power Cooperative (Dairyland), No. 48 at p. 1; Pee Dee Electric Cooperative (Pee Dee), No. 49 at p. 1; Oconto Electric Cooperative (Oconto), No. 50 at p. 1; Wright-Hennepin Cooperative Electric Association (Wright-Hennepin), No. 51 at p. 1; Midland Power Cooperative (Midland), No. 52 at

p. 1; Lynches River Electric Cooperative, Inc. (Lynches), No. 53 at p. 1; Pierce Pepin Cooperative Services (Pierce Pepin), No. 54 at p. 1; Dunn Energy Cooperative (Dunn), No. 55 at p. 1; Palmetto Electric Cooperative, Inc. (Palmetto), No. 56 at p. 1; Horry Electric Cooperative (Horry), No. 57 at p. 1; Joint Utilities, No. 58 at p. 4; Fairfield Electric Cooperative (Fairfield), No. 59 at p. 1; National Electrical Manufacturers Association (NEMA), No. 60 at p. 4; Tri-State Generation and Transmission Association (Tri-State), No. 61 at p. 1; Santee Electric Cooperative (Santee), No. 62 at p. 1; Cuyahoga Falls Electric Department (Cuyahoga Falls), No. 63 at p. 1; Newberry Electric Cooperative, Inc. (Newberry), No. 64 at p. 1; Giant Factories, Inc. (Giant Factories), No. 65 at p. 2; People's Energy Cooperative (People's Energy), No. 66 at p. 1; Michigan Electric Cooperative Association (MECA), No. 67 at p. 1; Joint Efficiency Advocates, No. 68 at p. 1; Eau Claire Energy Cooperative (Eau Clair), No. 69 at p. 1; Edisto Electric Cooperative (Edisto), No. 70 at p. 1; Coastal Electric Cooperative (Coastal), No. 71 at p. 1; Vaughn Thermal Corporation (Vaughn), No. 72 at p. 1; York Electric Cooperative (York), No. 73 at p. 1; Black River Electric Cooperative, Inc. (Black River), No. 76 at p. 1; Mid-Carolina Electric Cooperative, Inc. (MCEC), No. 77 at p. 1; Prairie Energy Cooperative (Prairie), No. 78 at p. 1; Alexandria Light and Power (ALP), No. 79 at p. 1; Alliance to Save Energy, No. 80 at p. 1; Blue Ridge Electric Cooperative (Blue Ridge), No. 82 at p. 1; Freeborn-Mower Cooperative Services (Freeborn-Mower), No. 83 at p. 2; American Public Power Association (APPA), No. 84 at p. 3; Rheem Manufacturing Company (Rheem), No. 86 at p. 2; Heat Transfer Products, Inc. (HTP), No. 87 at p. 1; Nebraska Public Power District (Nebraska Public Power), No. 88 at p. 1; Clark Public Utilities, No. 90 at p. 1; Northern Virginia Electric Cooperative (NOVEC), No. 91 at p. 1; Congressman Todd Rokita, No. 93 at p. 1; Black Hills Electric Cooperative (Black Hills), No. 96 at p. 1; Verendrye Electric Cooperative (Verendrye), No. 97 at p. 1; Dakota Energy

Cooperative (Dakota Energy), No.98 at p. 1; Minnesota Rural Electric Association (Minnesota Rural), No. 99 at p.1; Minnesota Valley Electric Cooperative (Minnesota Valley), No.101 at p.1; McLeod Cooperative Power (McLeod), No.102 at p.1; Lake Country Power (Lake Country), No.108 at p.1; Mountain Electric Cooperative (Mountain Electric), No.109 at p. 1; Leavenworth-Jefferson Electric Cooperative (Leavenworth-Jefferson), No. 110 at p.1; Riverland Energy Cooperative (Riverland), No. 111 at p. 1; Meeker Cooperative Light & Power (Meeker), No.112 at p.1; Federated Rural Electric (Federated), No.113 at p.1;Iowa Lakes Electric Cooperative (Iowa Lakes), No. 114 at p.1; Thumb Electric Cooperative (Thumb), No. 115 at p.1; South Central Indiana Rural Electric Cooperative (South Central Indiana REC), No. 117 at p.1; Tri-County Electric Cooperative (Tri-County Electric), No. 118 at p.1; Nobles Cooperative Electric (Nobles), No. 119 at p. 1; Lake Region Electric Cooperative (Lake Region), No. 120 at p. 1; Congressman Dan Burton, No. 122 at p.1; Sioux Valley Energy (Sioux Valley), No. 123 at p. 1; East Central Energy (East Central), No. 124 at p.1; Jackson County Rural Electric Membership Corporation (Jackson County), No. 126 at p.1; Duck River Electric Membership Corporation (Duck River), No. 127 at p. 1; Shenandoah Valley Electric Cooperative (Shenandoah Valley), No. 128 at p.1; Adams Electric Cooperative (Adams), No.129 at p. 1; Goodhue County Cooperative (Goodhue), No.130 at p.1; Adams-Columbia Electric Cooperative (Adams-Columbia), No.132 at p.1; Stearns Electric Association (Stearns), No.134 at p.1; Senator John Thune, No. 137 at p.1; Kandiyohi Power Cooperative (Kandiyohi), No.138 at p.1; Shelby Electric Cooperative (Shelby), No. 143 at p.1; Tri-County Rural Electric Cooperative, Inc. (Tri-County REC), No. 144 at p.1; Beltrami Electric Cooperative, No. 145 at p.1 (Beltrami); Habersham Electric Membership Cooperative (Habersham), No.146 at p.1; Flint Energy Membership Corporation (Flint), No. 147 at p.1; Dakota Valley and Northern Plains, No.149 at

p. 1; Aurelia Municipal Electric (Aurelia), No. 151 at p. 1; United Electric Cooperative (United Electric), No.153 at p.1)

The Northwest Advocates stated that action should be taken, but only if analysis concludes that the net benefits of resistance-only water heaters including load shifting and ancillary service benefits are greater than those of HPWHs. (Northwest Advocates, No. 89 at p. 2)

Only two commenters – one manufacturer, General Electric (GE), and one utility company, Farmers Electric Cooperative – recommended that DOE take no action to address the utility company concerns regarding the April 2010 final rule energy conservation standard for large-volume electric water heaters. (GE, No. 85 at pp. 1-4; Farmers Electric Cooperative, No. 2 at p. 1) Farmers Electric Cooperative cited the considerable energy conservation benefits and cost savings to consumers from heat pump water heaters as a reason for supporting the April 2010 standard. Farmers Electric Cooperative emphasized that HPWHs reduce electricity demand up to three times. GE argued that viable alternatives are available (including heat pump water heaters) to meet the needs of ETS programs (see additional discussion of alternatives in section 2 below). GE also stated that there is no basis for creating a new product class for grid interactive water heaters and that doing so would impede the development of the market for HPWHs (see additional discussion of the potential for a new product class in section 3). GE contended that such an approach would also create a loophole that would erase some of the consumer and national benefits achieved by the April 2010 standards, which would be contrary to DOE’s goals. (GE, No. 85 at p. 2)

EPRI took no position on whether DOE should take action, but rather noted that large-volume grid interactive ERWH appear to provide value to both utilities and consumers and stated its intent to conduct further research to quantify the value of overall system efficiencies of grid-interactive water heaters. (EPRI, No. 74 at p. 4) EPRI expressed concerns that without the continued availability of large volume electric water heaters beyond April 2015, the industry may permanently forego a potential resource to provide grid support, especially in light of the integration of renewable electricity sources. (EPRI, No. 74 at p. 5)

The majority of the comments received in support of DOE action described the benefits of ETS programs for consumers, utilities, and the Nation as the main reason that DOE should take action to preserve utility ETS programs. Generally these commenters believe that DOE should take some action (generally either establishing a new product class or establishing a waiver program) to preserve the ability of manufacturers to produce and utility companies to use large-volume electric resistance storage water heaters. These stakeholders supported action due to the considerable benefits that they believe ETS programs provide to consumers, utilities and the electric grid, and due to the perceived lack of alternative products capable of meeting the needs of ETS programs for electric water heaters. In total, the utility respondents indicated that they realize a combined peak load reduction of approximately 145 MW,⁹ and a cost savings of

⁹ In instances where both a group of cooperatives and its individual members gave figures, only the figures from the group of cooperatives were counted to avoid double counting. This total includes figures provided by: Humboldt, Heartland, Dairyland, FEM, South Central, Federated, Itasca-Mantrap, Northern Plains, PowerSouth, Bristol, Otter Tail, Shelby, Habersham, and Flint.

approximately 60 million dollars¹⁰ in annual savings from being able to utilize more efficient, less expensive energy sources. Many utility companies stated that participation in ETS programs allows consumers to benefit from discounted energy rates and financial incentives such as rebates, financing, or free and reduced cost repair and maintenance. (Buckeye, No. 3 at p. 2; Codington-Clark, No. 4 at p. 2; Rappahannock, No. 5 at p. 2; Northern Plains No. 6 at p. 1; Itasca-Mantrap, No. 7 at p. 1; Northwest Iowa Power, No. 8 at p. 2; Barron, No. 11 at p. 1; Clark, No. 13 at p. 2; Woodbury, No. 14 at p. 2; North West, No. 15 at p. 2; Bayfield, No. 16 at p. 2; Union County, No. 17 at p. 3; Allamakee-Clayton, No. 18 at p. 2; Lower Valley Energy, No. 19 at p. 2; Wabash, No. 21 at p. 2; Heartland, No. 22 at p. 2; South Central, No. 23 at p. 2; Cass County, No. 24 at p. 2; East River, No. 25 at p. 2; Richland, No. 26 at p. 2; Lyon-Lincoln, No. 27 at p. 2; Price, No. 30 at p. 2; FEM, No. 32 at p. 2; BEC, No. 33 at p. 2; Powell Valley, No. 34 at p. 2; Dakota Electric, No. 36 at p. 2; Nishnabotna Valley REC, No. 37 at p. 2; Iowa Lakes, No. 114 at pp. 2; Corn Belt, No. 39 at p. 2; Clay-Union, No. 40 at p. 2; Great River, No. 41 at p. 2; Central Georgia EMC, No. 42 at p. 2; Otter Tail, No. 44 at p. 2; ECSC, No. 45 at p. 2; Aiken, No. 46 at p. 1; Connexus, No. 47 at p. 1; Dairyland, No. 48 at p. 2; Pee Dee, No. 49 at p. 1; Oconto, No. 50 at p. 2; Wright-Hennepin, No. 51 at p. 1; Lynches,, No. 53 at p. 2; Horry, No. 57 at p.2; Pierce Pepin, No. 54 at p. 2; Palmetto, No. 56 at p. 2; Fairfield, No. 59 at p. 2; Tri-State, No.61 at p.2; Santee, No. 62 at p. 2; Newberry, No. 64 at p. 2; People’s Energy, No. 66 at p. 2; Eau Claire, No. 69 at p.2; Edisto, No. 70 at p. 2; Coastal, No. 71 at p. 2; Black River, No. 76 at p. 1; MCEC, No. 77 at p. 2; Blue Ridge, No. 82 at p. 2; NOVEC, No. 91 at p. 1; Black Hills, No. 96

¹⁰ In instances where both a group of cooperatives and its individual members gave figures, only the figures from the group of cooperatives were counted to avoid double counting. This total includes figures provided by: Humbolt, Dairyland, East River, ECSC, Dakota Electric, ECE, Federated, Goodhue, Mcleod, NIPCO, Buckeye, PowerSouth, Wabash, NOVEC, Lower Valley, Cass County, Bristol, Power Valley, Central Georgia EMC, Pierce Pepin, Eau Claire, Black Hills, Verendrye, Thumb Electric, SCIREMC, Tri-County, Shenandoah Valley, Adams, Tri-County, Flint, Dakota Valley and Northern Plains, United Electric, Iowa Lakes, Itasca-Mantrap, Kandiyohi, and Minnesota Valley Electric.

at p.2; Verendrye, No. 97 at p.1; Minnesota Valley, No.101 at p.1; McLeod, No.102 at p.2; Mountain Electric, No.109 at p. 1; Leavenworth-Jefferson, No. 110 at p.2; Meeker, No.112 at p.3; Federated, No.113 at p.2; Thumb Electric, No. 115 at p.2; South Central Indiana REC, No. 117 at p.2; Tri-County Electric, No. 118 at p.2; Nobles, No. 119 at p. 2; Lake Region, No. 120 at p. 2; Sioux Valley, No. 123 at p. 1; East Central, No. 124 at p.2; Jackson County, No. 126 at p.2; Shenandoah Valley, No. 128 at p.2; Adams Electric, No.129 at p. 1; Adams-Columbia, No.132 at p.1; Stearns, No.134 at p.1; Kandiyohi, No.138 at p.1; Habersham, No.146 at p.2; Flint, No. 147 at p.3; Dakota Valley and Northern Plains, No.149 at p. 2; Aurelia, No. 151 at p. 2; United Electric, No.153 at p.2).

The joint utility commenters cited a survey conducted by NRECA of its cooperatively owned utility members which found that the average bill credit for participating customers per water heater is \$58 a year. In addition to the bill credit, customers are often eligible to receive an upfront rebate to offset a portion of the purchase cost of certain eligible types of electric water heaters when the customer agrees to participate in the direct load control program. The average rebate among survey respondents that also offered the bill credits is \$230. (Joint Utilities, No. 58 at p. 8)

Through ETS programs for electric water heaters, utilities can require customers to heat and store hot water in times when overall electric demand and power-supply costs are low, thus lowering peak demand when costs are highest. Utilities contended that eliminating large volume electric resistance water heaters would reduce or eliminate ETS programs and would in turn result in higher electricity prices to consumers. (Buckeye, No. 3 at p. 2; Codington-Clark, No. 4 at p. 2; Rappahannock, No. 5 at p. 1; Itasca-Mantrap, No. 7 at p. 1; Northwest Iowa Power, No. 8 at p. 1; PowerSouth, No. 10 at p. 1; Barron, No. 11 at p. 1; Clark, No. 13 at p. 1; Woodbury, No.

14 at p. 2; North West, No. 15 at p. 1; Bayfield, No. 16 at p. 2; Union County, No. 17 at p. 1; Allamakee-Clayton, No. 18 at p. 1; Lower Valley Energy, No. 19 at p. 2; AO Smith, No. 20 at p. 1; Wabash, No. 21 at pp. 1-2; Heartland, No. 22 at p. 1; South Central, No. 23 at p. 2; Cass County, No. 24 at p. 1; East River, No. 25 at p. 1; Richland, No. 26 at p. 3; Lyon-Lincoln Electric Cooperative, No. 27 at pp. 1-3; Central, No. 28 at p. 1; Tri-County, No. 29 at p. 1; Price, No. 30 at pp. 1-2; Bristol, No. 31 at p. 2; FEM, No. 32 at p. 1; BEC, No. 33 at p. 1; Powell Valley, No. 34 at p. 2; Humboldt, No. 35 at p. 1; Dakota Electric, No. 36 at p. 1; Nishnabotna Valley REC, No. 37 at p. 1; Corn Belt, No. 39 at p. 1; Clay-Union, No. 40 at p. 1; Great River, No. 41 at p. 1; Central Georgia EMC, No. 42 at p. 1; Otter Tail, No. 44 at p. 1; ECSC, No. 45 at p. 1; Aiken, No. 46 at p. 1; Connexus, No. 47 at p. 1; Dairyland, No. 48 at p. 1; Pee Dee, No. 49 at p. 1; Oconto, No. 50 at p. 1; Wright-Hennepin, No. 51 at p. 1; Midland, No. 52 at p. 1; Lynches, No. 53 at p. 1; Pierce Pepin, No. 54 at p. 2; Dunn, No. 55 at p. 1; Palmetto, No. 56 at p. 1; Horry, No. 57 at p. 1; Joint Utility Commenters, No. 58 at p. 4; Fairfield, No. 59 at p. 1; Tri-State, No. 61 at p. 1; Santee, No. 62 at p. 1; Newberry, No. 64 at p. 1; People's Energy, No. 66 at p. 2; MECA, No. 67 at p. 1; Eau Claire, No. 69 at p. 2; Edisto, No. 70 at p. 1; Coastal, No. 71 at p. 1; York, No. 73 at p. 1; Black River, No. 76 at p. 1; MCEC, No. 77 at p. 1; Prairie, No. 78 at p. 1; Blue Ridge, No. 82 at p. 1; Freeborn-Mower, No. 83 at p. 2; APPA, No. 84 at p. 3; Nebraska Public Power, No. 88 at p. 1; Clark Public Utilities, No. 90 at p. 1; NOVEC, No. 91 at p. 1; Black Hills, No. 96 at p. 1; Verendrye, No. 97 at p. 1; Dakota Energy, No. 98 at p. 1; Minnesota Rural, No. 99 at p. 1; Minnesota Valley, No. 101 at p. 1; McLeod, No. 102 at p. 1; Lake Country, No. 108 at p. 1; Mountain Electric, No. 109 at p. 1; Leavenworth-Jefferson, No. 110 at p. 1; Riverland, No. 111 at p. 1; Meeker, No. 112 at p. 1; Federated, No. 113 at p. 1; Iowa Lakes, No. 114 at p. 1; Thumb Electric, No. 115 at p. 1; South Central Indiana REC, No. 117 at p. 1; Tri-

County Electric, No. 118 at p.1; Nobles, No. 119 at p. 1; Lake Region, No. 120 at p. 1; Sioux Valley, No. 123 at p. 1; East Central, No. 124 at p.1; Jackson County, No. 126 at p.1; Duck River, No. 127 at p. 1; Shenandoah Valley, No. 128 at p.1; Adams, No.129 at p. 1; Goodhue, No.130 at p.1; Adams-Columbia, No.132 at p.1; Stearns, No.134 at p.1; Kandiyohi, No.138 at p.1; Shelby, No. 143 at p.1; Beltrami, No. 145 at p.1; Habersham, No.146 at p.1; Flint, No. 147 at p.2; Dakota Valley and Northern Plains, No.149 at p. 1; Aurelia, No. 151 at p. 2; United Electric, No.153 at p.1)

Many utilities stated that ETS water heating programs have become a popular low-cost option for their members who do not have access to natural gas, as it allows them to heat water using electricity at lower cost. (Itasca-Mantrap, No. 7 at p. 2; Northwest Iowa Power, No. 8 at p. 2; Barron, No. 11 at p. 1; Clark, No. 13 at p. 2; Woodbury, No. 14 at p. 2; North West, No. 15 at p. 1; Bayfield, No. 16 at p. 2; Cass County, No. 24 at p. 2. Price, No. 30 at p. 2; Dakota Electric, No. 36 at p. 5; Nishnabotna Valley REC, No. 37 at p. 2; Great River, No. 41 at p. 2; Otter Tail, No. 44 at p. 2; Dairyland, No. 48 at p. 2; Wright-Hennepin, No. 51 at p. 2; Pierce Pepin, No. 54 at p. 2; Dunn, No. 55 at p. 2; People's Energy, No. 66 at p. 2; Eau Claire, No. 69 at p. 1; Freeborn-Mower, No. 83 at p. 2; Minnesota Rural, No. 99 at p.1; Minnesota Valley, No.101 at p.1; McLeod, No.102 at p.1; Riverland, No. 111 at p. 2; Meeker, No.112 at p.2; Federated, No.113 at p.2; Lake Region, No. 120 at p. 1; Goodhue, No.130 at p.1; Stearns, No.134 at p.1; Kandiyohi, No.138 at p.1)

Some utilities also stated that their ETS programs provide energy savings benefits because they serve as a tool to educate their members to help them understand and participate in programs that save energy and money for all members. (Union County, No. 17 at p. 1; Humboldt, No. 35 at p. 1; Dakota Electric, No. 36 at p. 2; Corn Belt, No. 39 at p. 2; Oconto, No.

50 at p. 2; Lake Country, No.108 at p.1; Jackson County, No. 126 at p.2; Duck River, No. 127 at p. 2) Utilities stated that their ETS programs promote energy conservation because the amount of energy used for domestic hot water needs is determined more by the amount of water used than by the efficiency of the water heater, and customers who know they have limits on their hot water capacity tend to conserve hot water. (Rappahannock, No. 5 at p. 2; Northwest Iowa Power, No. 8 at p. 2; Woodbury, No. 14 at p. 2; North West, No. 15 at p. 1; Dakota Electric, No. 36 at p. 2; Nishnabotna Valley REC, No. 37 at p. 2; Otter Tail, No. 44 at p. 3; Dairyland, No. 48 at p. 6, Minnesota Valley, No.101 at p.2; McLeod, No.102 at p.2; Meeker, No.112 at p.1; South Central Indiana REC, No. 117 at p.1; Lake Region, No. 120 at p. 2; Goodhue, No.130 at p.1; Stearns, No.134 at p.2; Kandiyohi, No.138 at p.2; Aurelia, No. 151 at p. 2)

Dairyland commented that studies indicate that participation in certain demand response programs can also result in an energy conservation effect. Specifically, Dairyland cited a 2005 study¹¹ of more than 200 demand response programs which found that dynamic pricing programs resulted in average total energy savings of four percent. The study also found that programs that combine dynamic pricing with automated control of consumer devices produce an even greater energy conservation effect, because according to the study, dynamic pricing programs cause participants to have a higher awareness of how they use energy, which, in turn, results in lower consumption. (Dairyland, No. 48 at p. 6)

Utilities also described how the utilities themselves benefit from an increased ability to manage peak load. Many utility companies indicated that the reduction or elimination of ETS

¹¹ Chris King and Dan Delurey, *Efficiency and Demand Response: Twins, Siblings, or Cousins? Analyzing the conservation effects of demand response programs*. Public Utilities Fortnightly, March 2005. Available at: <http://www.demandresponsecommittee.org/resource-1009/efficiency%20and%20demand%20response%20puf%2005%2003.pdf>

programs would force utilities to spend more money on meeting increased peak generation needs. (Rappahannock, No. 5 at p. 2; PowerSouth, No. 10 at p. 1; Clark, No. 13 at p. 2; Bayfield, No. 16 at p. 2; Union County, No. 17 at p. 3; Lower Valley Energy, No. 19 at p. 2; Wabash, No. 21 at p. 2; Heartland, No. 22 at p. 2; Cass County, No. 24 at p. 3; East River, No. 25 at p. 1; Central, No. 28 at p. 2; Tri-County, No. 29 at p. 2; Price, No. 30 at p. 2; Bristol, No. 31 at p. 2; FEM, No. 32 at p. 2; BEC, No. 33 at p. 2; Central Georgia EMC, No. 42 at p. 2; ECSC, No. 45 at p. 2; Aiken, No. 46 at p. 2; Dairyland, No. 48 at pp. 2-3; Oconto, No. 50 at p. 2; Wright-Hennepin, No. 51 at p. 2; Lynches, No. 53 at p. 2; Pierce Pepin, No. 54 at p. 2; Dunn, No. 55 at p. 2; Palmetto, No. 56 at p. 2; Horry, No. 57 at p. 1; Fairfield, No. 59 at p. 2; Tri-State, No. 61 at p. 5; Santee, No. 62 at p. 2; Newberry, No. 64 at p. 2; People's Energy, No. 66 at p. 2; Eau Claire, No. 69 at p. 2; Edisto, No. 70 at p. 2; Coastal, No. 71 at p. 2; York, No. 73 at p. 2; Black River, No. 76 at p. 2; MCEC, No. 77 at p. 2; Blue Ridge, No. 82 at p. 2; Freeborn-Mower, No. 83 at p. 2; APPA, No. 84 at p. 2; Clark Public Utilities, No. 90 at p. 1; Mountain Electric, No. 109 at p. 1; Tri-County Electric, No. 118 at p.2; Sioux Valley, No. 123 at p. 2; East Central, No. 124 at p.1; Jackson County, No. 126 at p.2; Habersham, No.146 at p.1; Flint, No. 147 at p.3)

A number of utility companies also argued that ETS programs benefit the electric grid by improving reliability and reducing system losses. Commenters stated that these effects are the result of improved utilization of the generation and transmission system infrastructure and improved system load factors. (Buckeye, No. 3 at pp. 1-3; Codington-Clark, No. 4 at p. 1; Itasca-Mantrap, No. 7 at p. 1; PowerSouth, No. 10 at p. 2; Union County, No. 17 at p. 3; Allamakee-Clayton, No. 18 at p. 2, Lower Valley Energy, No. 19 at p. 1-2; Wabash, No. 21 at p. 2; Heartland, No. 22 at p. 1; South Central, No. 23 at p. 1; Cass County, No. 24 at p. 2; East River, No. 25 at p. 2; Lyon-Lincoln, No. 27 at p. 1-2; Central, No. 28 at p. 1; Tri-County, No. 29 at p. 2;

Bristol, No. 31 at p. 2; FEM, No. 32 at p. 1; BEC, No. 33 at p. 1; Powell Valley, No. 34 at p. 2; Dakota Electric, No. 36 at p. 3; Corn Belt, No. 39 at p. 2; Dairyland, No. 48 at p. 2; Clay-Union, No. 40 at p. 1; Great River, No. 41 at p. 1; No. 48 at p. 3; Central Georgia EMC, No. 42 at p. 1; Otter Tail, No. 44 at p. 2; ECSC, No. 45 at p. 1; Aiken, No. 46 at p. 1; Connexus, No. 47 at p.2; Pee Dee, No. 49 at p. 1; Oconto, No. 50 at p. 2; Lynches, No. 53 at p. 1; Palmetto , No. 56 at p. 2; Horry, No. 57 at p. 1; Joint Utility Commenters, No. 58 at p. 17; Fairfield, No. 59 at p. 2; NEMA, No. 60 at p. 2; Tri-State, No. 61 at p. 5; Santee, No. 62 at p. 2; Newberry, No. 64 at p. 1; MECA, No. 67 at p. 1; Edisto, No. 70 at p. 1; Coastal, No. 71 at p. 1; York, No. 73 at p. 1; Black River, No. 76 at p. 1; MCEC, No. 77 at p. 2; Prairie, No. 78 at p. 1; ALP, No. 79 at p. 1; Blue Ridge, No. 82 at p. 2; NOVEC, No. 91 at p. 1; Wright-Hennepin, No. 51 at p. 2; Black Hills, No. 96 at p.1; Verendrye, No. 97 at p.1; Dakota Energy, No.98 at p. 1; Lake Country, No.108 at p.1; Mountain Electric, No.109 at p. 1; Meeker, No.112 at p.1; Federated, No.113 at p.1; Iowa Lakes, No. 114 at p. 1; Thumb Electric, No. 115 at p.1; South Central Indiana REC, No. 117 at p.1; Tri-County Electric, No. 118 at p.1; Nobles, No. 119 at p. 1; Lake Region, No. 120 at p. 1; Sioux Valley, No. 123 at p. 1; Jackson County, No. 126 at p.2; Duck River, No. 127 at p. 2; Shenandoah Valley, No. 128 at p.1; Adams, No.129 at p. 1; Senator John Thune, No. 137 at p.1; Shelby, No. 143 at p.1; Habersham, No.146 at p.1; Flint, No. 147 at p.3; Dakota Valley and Northern Plains, No.149 at p. 1; United Electric, No.153 at p.1) Several utilities also mentioned that their load control program can help facilitate the restoration of electric service during extreme weather emergencies. (Powell Valley, No. 34 at p. 2; Blue Ridge, No. 82 at p. 1; NOVEC, No. 91 at p.2; United Electric, No.153 at p.1)

According to utility companies, the reduction in energy usage during peak times from ETS programs allows the utilities to increase utilization of more efficient generation facilities

while simultaneously providing a method of integrating intermittent renewable energy sources into the electric grid. (Central Georgia EMC, No. 42 at p. 2; Codington-Clark, No. 4 at p. 2; Itasca-Mantrap, No. 7 at p. 1; Northwest Iowa Power, No. 8 at p. 2; Barron, No. 11 at p. 1; Clark, No. 13 at p. 1; Woodbury, No. 14 at p. 2; North West, No. 15 at p. 2; Bayfield, No. 16 at p. 1; Allamakee-Clayton, No. 18 at p. 2; Lower Valley Energy, No. 19 at p. 2; AO Smith, No. 20 at p. 1; Wabash, No. 21 at p. 2; South Central, No. 23 at p. 2; East River, No. 25 at p. 2; Richland, No. 26 at p. 3; Lyon-Lincoln Electric Cooperative, No. 27 at p. 2; Price, No. 30 at p. 1; BEC, No. 33 at p. 3; Humboldt, No. 35 at p. 1; Dakota Electric, No. 36 at p. 2; Nishnabotna Valley REC, No. 37 at p. 2; Great River, No. 41 at p. 3; Otter Tail, No. 44 at p. 3; Connexus, No. 47 at p. 1; Dairyland, No. 48 at p. 3; Midland, No. 52 at p. 2; Pierce Pepin, No. 54 at p. 2; Dunn, No. 55 at p. 2; Tri-State, No. 61 at p. 2; People's Energy, No. 66 at p. 2; MECA, No. 67 at p. 1; Eau Claire, No. 69 at p. 1; EPRI, No. 74 at p. 2-4; Prairie, No. 78 at p. 2; Freeborn-Mower, No. 83 at p. 2; Nebraska Public Power, No. 88 at p. 1; Corn Belt, No. 39 at p. 2; Clay-Union, No. 40 at p. 2; Wright-Hennepin, No. 51 at p. 2; HTP, No. 87 at p. 1; NOVEC, No. 91 at p.4; Black Hills, No. 96 at p.2; Minnesota Rural, No. 99 at p.1; Minnesota Valley, No.101 at p.1; McLeod, No.102 at p.1; Lake Country, No.108 at p.1; Riverland, No. 111 at p. 1; Meeker, No.112 at p.2; Federated, No. 113 at p.2; Nobles, No. 119 at p. 1; Lake Region, No. 120 at p. 1; Congressman Dan Burton, No. 122 at p.1; East Central, No. 124 at p.2; Goodhue, No.130 at p.2; Stearns, No.134 at p.2; Senator John Thune, No. 137 at p.1; Beltrami, No. 145 at p.1; Habersham, No.146 at p.3; Aurelia, No. 151 at p. 2)

After considering the information presented by stakeholders regarding the benefits of ETS programs to consumers, utilities, and the Nation, DOE is persuaded by the information submitted by the utility companies given their expertise in administering demand response

programs, regarding the benefits of ETS programs. DOE believes that the evidence presented indicates that these programs provide a number of valuable benefits to consumers, utilities, and the Nation. As a result, DOE agrees with the majority of commenters that action should be taken to mitigate the impacts of the April 2010 final rule standard levels on utility ETS programs in order to help preserve these benefits, if no practical alternatives exist to allow for the continuation of ETS programs in the absence of large-volume ERWHs. Accordingly, DOE considered whether practical alternatives exist that would allow the existing ETS programs to continue to be effective despite the potential unavailability of large volume ERWHs. DOE's consideration of this issue, as well as comments received, are discussed in section 2.

2. Alternatives to Large-Volume Electric Resistance Water Heaters to Serve the Needs of ETS Programs

DOE recognizes that participants in ETS programs need more hot water storage capacity than they would require absent their participation in such programs. However, as noted in the June 2012 RFI, DOE believes that there are potential alternatives that may be able to provide a comparable amount of water storage capacity required for these programs. These potential alternatives include large-volume HPWHs and multiple (two or more) small-volume ERWHs. A number of stakeholders argued that heat pump water heaters and multiple small-volume water heaters are not well-suited for ETS programs and would not be a viable replacement for large-volume ERWHs in these applications. The points that the commenters raised are discussed below.

Many utility company commenters emphasized that managing a load control program is a balance of controlling load while maintaining customer satisfaction. Utilities stated that large volume ERWHs are required to ensure ETS program participants have enough hot water and

remain satisfied with the program. These commenters asserted that smaller tanks reduce the amount of storage capacity and thus require more recharge time between control periods to ensure customers have enough hot water. Conversely, large capacity water heaters allow consumers to have enough hot water during control periods. (Buckeye, Inc. No. 3 at p. 1; Codington-Clark, No. 4 at p. 2; Northwest Iowa Power, No. 8 at p. 2; PowerSouth, No. 10 at p. 2; Barron, No. 11 at p. 1; Clark, No. 13 at p. 1; Woodbury, No. 14 at p. 1; North West, No. 15 at p. 2; Bayfield, No. 16 at p. 2; Union County, No. 17 at p. 1; South Central, No. 23 at p. 1; Cass County, No. 24 at p. 3; East River, No. 25 at p. 2; Richland, No. 26 at p. 1; Lyon-Lincoln Electric Cooperative, No. 27 at p. 2; Price, No. 30 at p. 1; Bristol, No. 31 at p. 2; FEM, No. 32 at p. 2; Nishnabotna Valley REC, No. 37 at p. 2; Corn Belt, No. 39 at pp. 2-3; Clay-Union, No. 40 at p. 2; Great River, No. 41 at p. 1; Central Georgia EMC, No. 42 at p. 2; Otter Tail, No. 44 at p. 2; Wright-Hennepin, No. 51 at p. 1; Pierce Pepin, No. 54 at p. 2; Dunn, No. 55 at p. 1; Horry, No. 57 at p. 2; Fairfield, No. 59 at p. 2; Tri-State, No. 61 at p.3; People's Energy, No. 66 at p. 2; Eau Claire, No. 69 at p. 1; Prairie, No. 78 at p. 2; Freeborn-Mower, No. 83 at p. 2; Black Hills, No. 96 at p.2; Riverland, No. 111 at p. 1; Meeker, No. 112 at p.1; Tri-County Electric, No. 118 at p.2; Nobles, No. 119 at p. 2; Sioux Valley, No. 123 at p. 2; East Central, No. 124 at p.2; Jackson County, No. 126 at p.1; Goodhue, No. 130 at p.1; Aurelia, No. 151 at p. 2; United Electric, No. 153 at p.2)

A number of parties stated that the heat pump unit is, by itself, incapable of heating water to the temperatures needed for ETS programs. (PowerSouth, No. 10 at p. 3; Barron, No. 11 at p. 2; Clark, No. 13 at p. 2; Bayfield, No. 16 at p. 2; Allamakee-Clayton, No. 18 at p. 2; A. O. Smith, No. 20 at p. 2; Richland, No. 26 at p. 3; Price, No. 30 at p. 2; Bristol, No. 31 at p. 1; Great River, No. 41 at p. 4; Dairyland, No. 48 at p. 4; Pierce Pepin, No. 54 at p. 2; Dunn, No. 55 at p.

2; Joint Utilities, No. 58 at p. 13; People's Energy, No. 66 at p. 2; Eau Claire, No. 69 at p. 2; Vaughn, No. 72 at p. 6; ALP, No. 79 at p. 1; Freeborn-Mower, No. 83 at p. 2; APPA, No. 84 at p. 2; Clark Public Utilities, No. 90 at p. 1; NOVEC, No. 91 at p. 4; Riverland, No. 111 at p. 2; Adams-Columbia, No. 132 at p. 2; Habersham, No. 146 at p. 3)

GE and the Northwest Advocates comment noted that using the electric resistance elements of an HPWH, it is possible to reach higher temperatures as well as heat the water faster. (GE, No. 85 at p. 3; Northwest Advocates, No. 89, at p. 4) AO Smith commented that not all HPWHs have electric resistance elements that are large enough to allow them to achieve the necessary temperatures for ETS programs. But AO Smith also stated that even for HPWHs that do have a resistance element that is large enough to achieve the needed tank temperature, the unit would be operating like a very expensive ERWH. (Rappahannock, No. 5 at p. 2; A. O. Smith, No. 20 at p. 2; Great River, No. 41 at p. 4; Dairyland, No. 48 at p. 4; Joint Utilities, No. 58 at p. 16; NEMA, No. 60 at p. 4; EPRI, No. 74 at p. 3; NOVEC, No. 91 at p. 4; Adams-Columbia, No. 132 at p. 2; Habersham, No. 146 at p. 3; Dakota Valley and Northern Plains, No. 149 at p. 1; ECE, No. 124 at p. 3)

DOE believes that most HPWHs are technically capable of heating water to the temperatures needed for ETS programs, but would need to use the electric resistance elements in order to heat the tank to temperatures above the maximum temperature limits of current HPWH refrigerants. The need to use the electric resistance element would lower overall efficiency and reduce the energy and cost savings that would otherwise result from the use of a HPWH. DOE has not attempted to quantify such energy and cost savings differences in this NPRM, but could do so in evaluating specific waiver requests.

Several interested parties noted that use of HPWHs in ETS programs would lead to deterioration of the compressor due to frequent on/off cycling for demand response purposes, and the frequent on/off cycle would also reduce the efficiency of the HPWH. (PowerSouth, No. 10 at p. 3; Barron, No. 11 at p. 2; Clark, No. 13 at p. 2; Bayfield, No. 16 at p. 2; Allamakee-Clayton, No. 18 at p. 2; Richland, No. 26 at p. 3; Tri-Country, No. 29 at p. 2; Price, No. 30 at p. 2; Powell Valley, No. 34 at p. 3; Great River, No. 41 at p. 3; Dairyland, No. 48 at p. 4; Pierce Pepin, No. 54 at p. 2; Dunn, No. 55 at p. 2; Joint Utilities, No. 58 at p. 14; NEMA, No. 60 at p. 3; People's Energy, No. 66 at p. 2; Eau Claire, No. 69 at p. 2; EPRI, No. 74 at p. 3; ALP, No. 79 at p. 1; Freeborn-Mower, No. 83 at p. 2; APPA, No. 84 at p. 2; Clark Public Utilities, No. 90 at p. 1; NOVEC, No. 91 at p. 4; Riverland, No. 111 at p. 2; Federated, No. 113 at p. 2; Habersham, No. 146 at p. 3) EPRI stated that using variable speed compressors in HPWHs is a solution to the start-stop operation problem, but additional research is needed in order to understand whether this HPWH design can yield efficiency gains and emerge as a cost-effective solution for customers and the grid. (EPRI, No. 74 at p. 3)

DOE understands that while a HPWH might cycle frequently in some ETS applications, the minimum run times for existing HPWHs are sufficiently long (30 minutes) that on/off cycling is unlikely to lead to deterioration of the compressor. DOE agrees that variable speed compressors may be useful, but notes that the benefits of this technology have not yet been demonstrated and the cost of this option is still uncertain.

Several stakeholders stated that using a vapor-compression cycle to heat water increases operating time compared to electric resistance heating, so there would be a smaller time window for load reduction and less opportunity for load shifting. (Buckeye, No. 3 at p. 2; Codington-Clark, No. 4 at p. 2; Bayfield, No. 16 at p. 2; Union County, No. 17 at p. 3; A. O. Smith, No. 20

at p. 4; Cass County, No. 24 at p. 4; East River, No. 25 at p. 2; Richland, No. 26 at p. 3; Lyon-Lincoln, No. 27 at p. 2; Corn Belt, No. 39 at p. 3; Clay-Union, No. 40 at p. 2; Great River, No. 41 at p. 3; ECSC, No. 45 at p. 3; Dairyland, No. 48 at p. 4; Pee Dee, No. 49 at p. 2; Lynches, No. 53 at p. 3; Pierce Pepin, No. 54 at p. 2; Palmetto, No. 56 at p. 2; Joint Utilities, No. 58 at p. 16; Fairfield, No. 59 at p. 3; NEMA, No. 60 at p. 3; York, No. 73 at p. 4; EPRI, No. 74 at p. 4; Black River, No. 76 at p. 2; Prairie, No. 78 at p. 2; ALP, No. 79 at p. 1; Blue Ridge, No. 82 at p. 2; Freeborn-Mower, No. 83 at p. 2; APPA, No. 84 at p. 2; Clark Public Utilities, No. 90 at p. 1; NOVEC, No. 91 at p. 4; Nobles, No. 119 at p. 2; Adams-Columbia, No. 132 at p. 2; Habersham, No. 146 at p. 3; ECE, No. 124 at p. 2; FEM, No. 32 at p. 2; Iowa Lakes, No. 114 at p. 3; Aiken, No. 46 at p. 2; Itasca-Mantrap, No. 7 at p. 2)

DOE agrees that HPWHs have slower recovery when operating in heat pump only mode, but believes that this issue could be overcome by utilizing the backup electric resistance elements or by using water heaters with even larger rated volumes than currently used in ETS programs. However, DOE notes that if prolonged operation using electric resistance elements is required, the overall efficiency of the water heater will be lowered.

Several parties stated that HPWHs have additional total installed cost, which makes them less economically feasible for ETS programs. (PowerSouth, No. 10 at p. 3; Bayfield, No. 16 at p. 2; Cass County, No. 24 at p. 5; East River, No. 25 at p. 2; Richland, No. 26 at p. 2; Tri-Country, No. 29 at p. 3; BEC, No. 33 at p. 3; Dakota Electric, No. 36 at p. 4; Otter Tail, No. 44 at p. 3; ECSC, No. 45 at p. 3; Connexus, No. 47 at p. 1; Dairyland, No. 48 at p. 5; Pee Dee, No. 49 at p. 2; Wright-Hennepin, No. 51 at p. 1; Lynches, No. 53 at p. 3; Palmetto, No. 56 at p. 2; Horry, No. 57 at p. 4; Joint Utilities, No. 58 at p. 14; Fairfield, No. 59 at p. 3; Newberry, No. 64 at p. 3; Edisto, No. 70 at p. 3; Coastal, No. 71 at p. 3; Vaughn, No. 72 at p. 2 to 3; York, No. 73 at

p. 2; Black River, No.76 at p. 3; MCEC, No. 77 at p. 2; Blue Ridge, No. 82 at p. 2; Clark Public Utilities, No. 90 at p. 1; NOVEC, No. 91 at p. 4; Verendrye, No. 97 at p. 1; Dakota Energy , No. 98 at p. 1; Minnesota Rural , No. 99 at p. 1; Mountain Electric , No. 109 at p. 1; Leavenworth-Jefferson, No. 110 at p. 1; Meeker, No. 112 at p. 2; Iowa Lakes, No. 114 at p. 2; Federated, No. 115 at p. 2; Thumb Electric, No. 115 at p. 1; SCI REMC, No. 117 at p. 1; Tri-County, No. 118 at p. 1; Nobles, No. 119 at p. 1; LREC, No. 120 at p. 1; Sioux Valley, No. 123 at p. 1; Jackson County, No. 126 at p. 2; Adams-Columbia, No. 132 at p. 2; People's Energy, No. 142 at p. 1; Beltrami, No. 145 at p. 1; Habersham, No. 146 at p. 3; Flint, No. 147 at p. 1; Aurelia, No. 151 at p. 1; United Electric, No. 153 at p. 1; ECE, No. 124 at p. 2; Iowa Lakes, No. 114 at p. 3; Aiken, No. 46 at p. 2; Santee, No. 62 at p. 1)

DOE agrees that a large HPWH would have much higher installed cost than a large ERWH. The extent to which this would be balanced by lower operating costs would vary among ETS programs. DOE notes this increase in first installed cost could have an adverse impact on utility ETS programs, in which customer participation is voluntary, because a utility customer may be less willing to take on the additional installed cost of a HPWH to participate in the program.

Several of the interested parties stated that HPWHs require larger installation space and larger surrounding air volume. Some of the parties also stated that such requirements could force the consumer to switch to two smaller ERWHs, which would lead to increased costs for purchase and maintenance (as compared to a large-volume ERWH) and lower efficiency. (Rappahannock, No. 5 at p. 2; PowerSouth, No. 10 at p. 3; Woodbury, No. 14 at p. 1; North West, No. 15 at p. 1; Bayfield, No. 16 at p. 2; Union County, No. 17 at p. 3; Cass County, No. 24 at p. 3; Lyon-Lincoln, No. 27 at p. 2; Tri-Country, No. 29 at p. 4; Price, No. 30 at p. 2; Bristol, No. 31 at p. 1;

BEC, No. 33 at p. 2; Dakota Electric, No. 36 at p. 2; Corn Belt, No. 39 at p. 3; Clay-Union, No. 40 at p. 2; Otter Tail, No. 44 at p. 3; ECSC, No. 45 at p. 3; Connexus, No. 47 at p. 1; Pee Dee, No. 49 at p. 2; Lynches, No. 53 at p. 3; Dunn, No. 55 at p. 2; Palmetto, No. 56 at p. 2; Horry, No. 57 at p. 4; Joint Utilities, No. 58 at p. 19; Fairfield, No. 59 at p. 3; NEMA, No. 60 at p. 4; Newberry, No. 64 at p. 2; Eau Claire, No. 69 at p. 3; Edisto, No. 70 at p. 3; Coastal, No. 71 at p. 3; Vaughn, No. 72 at p. 5; York, No. 73 at p. 2; Black River, No. 76 at p. 3; MCEC, No. 77 at p. 2; Blue Ridge, No. 82 at p. 2; Freeborn-Mower, No. 83 at p. 2; APPA, No. 84 at p. 2; Clark Public Utilities, No. 90 at p. 1; NOVEC, No. 91 at p. 5; Minnesota Valley, No. 101 at p. 1; Federated, No. 113 at p. 2; Tri-County, No. 118 at p. 2; Nobles, No. 119 at p. 2; Shenandoah Valley, No. 128 at p. 2; Goodhue, No. 130 at p. 1; Adams-Columbia, No. 132 at p. 2; Stearns, No. 134 at p. 1; Habersham, No. 146 at p. 3; Flint, No. 147 at p. 1; Aurelia, No. 151 at p. 1; McLeod, No. 102 at p. 1; ECE, No. 124 at p. 2; Kandiyohi, No. 138 - 141 at p. 1; FEM, No. 32 at p. 2; Nishnabotna Valley REC, No. 37 at p. 1; Iowa Lakes, No. 114 at p. 3; Aiken, No. 46 at p. 2; Santee, No. 62 at p. 2) AO Smith stated that using two smaller water heaters in place of one large water heater for ETS programs is technologically achievable, but it would increase the complexity and cost of the control scheme and installation. (AO Smith, No. 20 at p. 3) Several utilities noted that a large portion of consumers enrolled in their ETS programs live in mobile homes, which are particularly challenging to retrofit with HPWHs due to space constraints. (Tri-County, No. 29 at p. 2; BEC, No. 33 at p. 3; ECSC, No. 45 at p. 3; Pee Dee, No. 49 at p. 2; Lynches, No. 53 at p. 3; Palmetto, No. 56 at p. 2; Fairfield, No. 59 at p. 3; Newberry, No. 64 at p. 3; Edisto, No. 70 at p. 3; Coastal, No. 71 at p. 3; York, No. 73 at p. 2; Black River, No. 76 at p. 3; MCEC, No. 77 at p. 3; Blue Ridge, No. 82 at p. 2; Adams-Columbia, No. 132 at p. 2; Aiken, No. 46 at p. 2; Santee, No. 62 at p. 3)

DOE believes that the use of two smaller water heaters in place of one large water heater for ETS programs could be a viable option in some cases. However, DOE agrees that there are situations where a consumer in an ETS program would have difficulty physically accommodating a HPWH or multiple smaller water heaters, resulting in higher installation expenses.

The Northwest Advocates commented that HPWHs can provide the same load shifting and ancillary services (load following and regulation) and benefits that are provided by ERWHs. They also stated that with additional programming (and no additional material costs) the HPWH controls can be adapted to provide ETS capabilities and the same functionality as resistance-only grid-interactive water heaters. (Northwest Advocates, No. 89, at p. 2) Similarly, GE argued that because all HPWHs use electronic controls as opposed to the electromechanical controls found on most standard electric water heaters, these products can much more easily interact with the grid and provide simpler ETS capability. (GE, No. 85 at p. 2) GE stated that the concerns that HPWHs will not be able to fill the same role as large volume resistance water heaters are not technologically justified. GE added that new larger capacity HPWH models may need to be produced, but there is no inherent reason why that cannot be done. (GE, No. 85 at p. 3)

DOE believes that from a technical perspective HPWHs could substitute for ERWHs in ETS programs. Future improvements in HPWH design such as variable speed compressors, use of higher temperature refrigerants and refinements to controls may improve HPWHs' suitability for use in ETS programs. DOE also believes that multiple smaller ERWHs are a feasible alternative to a large-volume ERWH, but may lower the system efficiency of the water heating process and may not be an option in space constrained installations. Additionally, DOE believes that the installed cost of currently available HPWH models or multiple small-volume ERWHs

instead of a single large-volume ERWH and the need to often operate HPWHs in electric resistance mode to serve the demands of ETS programs could limit the attractiveness of participation in ETS programs. Additional analysis and data would be needed to determine the precise effect of unavailability of large-volume ERWHs on participation in ETS programs.

Based on the above considerations, DOE concludes that products that are currently available on the market that meet the April 2010 standard levels may not be practical to fulfill the needs of utility ETS programs. Therefore, as discussed immediately below, DOE considered two approaches – establishing a separate product class and establishing a waiver process. See sections 3 and 4, respectively.

3. Potential for a Separate Product Class for “Grid-Interactive” Electric Storage Water Heaters

Twenty-three utility companies and associations, four manufacturers, one trade association (NEMA), and three U.S. Congressmen recommended that DOE establish a separate product class for grid interactive water heaters. (Itasca-Mantrap No. 7 at p. 2; Barron, No. 11 at p. 2; Clark, No. 13 at p. 2; Bayfield, No. 16 at p. 2; East River, No. 25 at p. 3; Richland, No. 26 at p. 3; Lyon-Lincoln Electric Cooperative, No. 27 at p. 3; Price, No. 30 at p. 2; Dakota Electric, No. 36 at p. 5; Corn Belt, No. 39 at p. 3; Otter Tail, No. 44 at p. 4; Dairyland, No. 48 at p. 6; Pierce Pepin, No. 54 at p. 2; Dunn, No. 55 at p. 2; Joint Utilities, No. 58 at p. 4; People’s Energy, No. 66 at p. 2; MECA, No. 67 at p. 1; Eau Claire, No. 69 at p. 3; ALP, No. 79 at p. 1; Freeborn-Mower, No. 83 at pp. 2-3; APPA, No. 84 at p. 3; HTP, No. 87 at p. 1; Nebraska Public

Power, No. 88 at p. 1; Rheem, No. 86 at p. 2; Giant Factories, No. 65 at p. 2; AO Smith¹², No. 20 at p. 2; NEMA, No. 60 at p. 4; Congressman Todd Rokita, No. 93 at p. 1; Riverland, No. 111 at p. 2; Congressman Dan Burton, No. 122 at p.1; Senator John Thune, No. 137 at p.1)

The Joint Utilities urged the Secretary to use the authority granted pursuant to 42 U.S.C. 6295(o)(2)(A) to develop a new standard for large-volume electric resistance water heaters that interact with the grid. Specifically, the Joint Utilities believe that the grid connectivity feature of certain large volume ERWHs differentiates them from the broader ERWH product class and warrants a separate classification and standard. (Joint Utilities, No. 58 at p. 4) The Joint Utilities further argued that grid-interactive water heaters are clearly distinguishable from water heaters that are not responsive to grid signals, and proposed a definition (discussed below) that would distinguish those products from other water heaters. The Joint Utilities also stated that grid-interactive water heaters provide uninterrupted hot water to consumers, large amounts of energy storage during times when there is an excess of unused, available renewable energy, the ability to reduce load on the grid to enhance reliability or reduce congestion on the transmission grid, and reliability services in the form of frequency regulation or other grid ancillary services, all of which make this specific group of water heaters different from the general class of electric water heaters, and thus deserving of a new classification pursuant to Section 6295 (o)(2)(A). (Joint Utilities, No. 58 at p. 17)

The Joint Utilities proposed that a “Grid-Interactive Water Heater” be defined as a separate product class consisting of products with the following characteristics: 1) a storage tank

¹² AO Smith’s comment stated that they “would not object to” a new product class. DOE interprets this as implying support for this approach because AO Smith also indicated that it supports the continued existence of electric resistance storage water heaters with storage volumes above 55 gallons, disagreed with all of the other options listed, and did not offer an alternative.

greater than 55 gallons; 2) a control device capable of receiving communication from a grid operator, electric utility, or other energy services company that provides real-time control of the heating element; 3) evidence that the appliance owner is enrolled in a grid operator, electric utility, or other energy services company program to provide demand response or related interactive electric grid services; 4) a thermostatic mixing valve if the water heater is capable of heating water greater than 120 degrees Fahrenheit. (Joint Utilities, No. 58 at pp. 17-18)

Further, the Joint Utilities supplemental comment suggested that if “grid interactive water heaters” were established as a separate product class and required ongoing reporting from utilities in order to track manufacturer sales versus utility installations, this should be done through the addition of a single question onto the Energy Information Administration (EIA) forms EIA-861 and EIA-861S in order to minimize burdens on utilities and DOE/EIA. The Joint Utility commenters proposed adding the following question: “If you have a demand side management (DSM) program for grid-interactive water heaters (as defined by DOE), how many grid-interactive water heaters were added to your program this/last year?” The Joint Utilities commented that the information collected by EIA could be made available to DOE for tracking purposes. (Joint Utilities Supplemental, No.156 at pp.1-2)

Rheem commented on the four criteria of the proposed product class for “grid-interactive water heater.” Rheem expressed support for the first requirement proposed by the Joint Utilities in the definition of “grid-interactive water heater” requiring such water heaters to have a storage volume of greater than 55 gallons, but noted this requirement may have a limiting effect on the potential application and associated benefits in the field. Rheem also supported the second criterion proposed by the Joint Utilities that a control device must be present with the understanding that these control devices are provided in the field by the utility to the consumer in

support of their ETS program, giving the utility the ability to turn the water heater on or off. Rheem also agreed with the third criterion proposed by utilities (i.e., agreement to be enrolled in a grid operator, electric utility, or other energy services company program to provide demand response or other electric grid services) with the additional clarification that the agreement is a contractual arrangement between utility and consumer, not part of a product definition. Lastly, Rheem did not support the requirement of a mixing valve at 120°F, noting that almost all ERWHs can be adjusted to heat water to 170°F and most if not all manufacturers encourage use of a mixing valve. Rheem stated that requiring a mixing valve at 120°F for this product class only would be inconsistent given that other product classes and the majority of residential electric storage water heaters do not require such a device. (Rheem, No. 86 at p. 3)

AO Smith also commented on the four criteria for defining a “grid-interactive water heater” product class, as proposed by the Joint Utilities. AO Smith supported the first and third criteria listed above (i.e., that the water heater must have a storage volume greater than 55 gallons, and that the water heater must be enrolled in a utility grid-interactive program). However, AO Smith expressed concern with the criterion that the unit must be equipped with a communication-capable control device due to the large number of different devices currently in use with differing operating characteristics and communication protocols. AO Smith stated that unless there was a standardized communication protocol and operational algorithm, it would be difficult for water heater manufacturers to justify making a small number of water heaters for ETS programs with each customer (utility) requiring a different control device in an even smaller number of heaters. AO Smith stated that it would support the criterion if it were altered to provide as an option that the water heater may be without a control device if it has a provision for connection to a utility-provided communication device that would interact with the water

heater control to provide equivalent grid communication. Regarding the fourth proposed criterion, AO Smith stated that it does not object to the inclusion of thermostatic mixing valve in the definition, but noted that almost all ERWHs can be adjusted to 170°F and commented that 120°F is too low for many purposes. AO Smith expressed preference for a criteria that specifies that since the heater will be heated to a high water temperature during off-peak periods, a means (such as a thermostatic mixing valve) should be provided to adjust the outlet water to the desired delivery temperature, which in most cases will be less than storage temperature. (AO Smith, No. 20 at p. 2)

Contrary to the Joint Utilities' and manufacturers' position, the Joint Efficiency Advocates stated that a separate product class for grid-interactive water heaters is not appropriate. (Joint Efficiency Advocates, No. 68 at p. 1) The Joint Efficiency Advocates stated that given the novelty of grid-interactive water heaters, the variety of possible applications, and the variety of possible product designs and features, it would be unclear how to meaningfully define such a product class to enable the benefits while reducing risk and minimizing costs. (Joint Efficiency Advocates, No. 68 at p. 3) The Joint Efficiency Advocates were also concerned that there would be a significant risk that a new product class may be abused as a loophole to bypass the efficiency standards, rather than to deliver grid benefits. The Joint Efficiency Advocates pointed out that the benefits remain unquantified and generally unassessed, making it impossible to consider whether the benefits outweigh the risks and costs. Lastly, the Joint Efficiency Advocates stated that creating a new product class would likely run afoul of the "anti-backsliding" provision. The Joint Efficiency Advocates argued that all water heaters, including those that include grid interactive controls, are now subject to the 2010 standards, which prevents

DOE from creating a new class with lower standards for a grid interactive water heater. (Joint Efficiency Advocates, No. 68 at p. 3)

GE also argued against the creation of a product class for grid interactive water heaters, stating that it is not justified under DOE's criteria for establishing product classes since it would not preserve a utility that would otherwise be eliminated by the standard. (GE, No. 85 at p. 3) GE stated that even if a certain consumer utility is at risk, that concern should have been raised during the rulemaking when it could have been thoroughly evaluated by DOE and all interested parties. (GE, No. 85 at p. 3) Further, GE commented that grid interactive water heaters do not have capacity or other performance related features that HPWHs do not, or could not, have, and opined that creating a separate product class would impede development of the market for high-performing HPWH products. (GE, No. 85 at p.3) GE also argued that DOE is prevented under the “anti-backsliding” provision at 42 U.S.C. 6295(o)(1) from amending the standard to waive its requirements as applicable to a subset of covered products, especially if doing so increases maximum allowable energy use or decreases minimum energy efficiency. (GE, No. 85 at pp. 4)

After considering the comments regarding the potential for establishing a separate product class for “grid-interactive water heaters” as proposed by the Joint Utilities, DOE has tentatively concluded not to propose such an approach. In particular, DOE agrees with the Joint Efficiency Advocates and GE that under 42 U.S.C. 6295(o)(1), DOE is prohibited from promulgating any standard that increases the maximum allowable energy use or decreases minimum energy efficiency of a covered product. The standards established for electric water heaters in the April 2010 final rule apply to all electric water heaters meeting the applicable regulatory definitions. Therefore, establishing a separate product class for a segment of electric storage water heaters and setting a lower energy conservation standard level than the required

energy efficiency of such products would be prohibited under the “anti-backsliding” provision contained in 42 U.S.C. 6295(o)(1). Accordingly, DOE has tentatively concluded that it will not propose to establish a separate product class for “grid-interactive” water heaters with energy conservation standards that are less stringent than those promulgated in the April 2010 final rule. However, DOE does agree with the suggestion by the Joint Utilities that the number of water heaters in ETS programs should be tracked, and that adding a question to the EIA-861 and EIA-861S forms are an appropriate way to achieve this goal while minimizing burdens on all parties. DOE’s proposal in this regard is discussed further in section 3 below.

4. Potential for Establishing a Waiver Process

In the June 2012 RFI, DOE also requested comment on the potential for establishing a waiver process that would allow for production of limited number of large-volume ERWHs solely for ETS programs. Both the joint comment received from Joint Efficiency Advocates, ACEEE, NRDC, and ASAP, and the joint comment received from the Northwest Advocates, NEEA, NPCC, and BPA, generally supported a waiver system. (Joint Efficiency Advocates, No. 68 at p. 1; Northwest Advocates, No. 89 at p. 2) Several utility companies also indicated that the waiver option could potentially be a viable alternative, but most of the utility company commenters preferred the product class approach discussed above. (East River, No. 25 at p. 3; Lyon-Lincoln, No. 27 at p. 3; Bristol, No. 31 at p. 2; Corn Belt, No. 39 at p. 3; Otter Tail, No. 44 at p. 5)

The Joint Efficiency Advocates argued that a waiver approach is legal under 42 U.S.C. 7194(a) and could allow manufacturers to produce small quantities of large-volume ERWHs and sell them directly to utilities that operate such programs. (Joint Efficiency Advocates, No. 68 at p. 4) The Joint Efficiency Advocates stated that a waiver program has precedent and cited the

waivers granted for small-duct, high-velocity central air conditioners from the standards for residential central air conditioners as an example. The Joint Efficiency Advocates stated that a waiver system would add flexibility and reduce the likelihood of loopholes, and would facilitate ongoing creativity and dynamism from the utility and manufacturing industries, given the ability to revisit waiver conditions. The Joint Efficiency Advocates argued that a waiver system would also encourage and facilitate ongoing assessment by DOE, industry, and other stakeholders, leading to greatly improved understanding of the benefits and costs of grid-interactive water heaters, and form the basis for well-informed future decisions of a more permanent nature. (Joint Efficiency Advocates, No. 68 at p.4)

The Joint Efficiency Advocates stated that any waiver would need to be limited to cover units sold to utilities that actually have demand response programs, and the utilities must be required to sell or provide grid-interactive water heaters only to customers who agree to participate in the demand response program. In addition, the Joint Efficiency Advocates suggested that any application for waiver should have to demonstrate that it is impossible to operate a demand response program with water heaters that meet the standard. The Joint Efficiency Advocates also argued that waiver applications should be made jointly by a manufacturer and a utility. (Joint Efficiency Advocates, No. 68 at p. 4)

The Northwest Advocates stated that prior to determining whether to grant a waiver, DOE should determine the net economic benefits of such an action. (Northwest Advocates, No. 89 at p. 2) The Northwest Advocates also stated that the mechanism enforcing the conditions of any program waiver that may be established should be given very careful consideration because binding new homeowners to agreements made by previous homeowners has significant legal complications. The commenters also noted that the required level of program oversight and cost

of enforcement should be considered. (Northwest Advocates, No. 89 at pp. 4-5) Similarly, Otter Tail stated that when customers move the water heater stays with the home, but the new homeowner may or may not want to have a controlled water heater that is part of an ETS program. (Otter Tail, No. 44 at p. 5)

The Joint Utilities, Rheem, and AO Smith generally opposed the option of establishing a waiver process. Opposition was primarily due to concerns about how distribution would be affected if the waiver were to require some control or direct distribution from a manufacturer to a utility program. AO Smith stated that not all water heater manufacturers sell directly to utilities, meaning the level of control DOE assumes the manufacturers possess may not exist. (AO Smith, No. 20 at p.3) Similarly, Rheem stated that a waiver type system concept cannot be managed effectively by a manufacturer, since a manufacturer has little to no distribution control over the intended application of its product. (Rheem, No. 86 at p. 3) Further, AO Smith argued that using a waiver system would introduce a very high degree of uncertainty to the manufacturer (and the utility) as to their business planning for such water heaters and has the potential to slow down the manufacturing process if a waiver must be granted each time a water heater is to be manufactured. AO Smith added that if the intent is to allow a “blanket waiver,” DOE should establish a standing program instead as both actions achieve the same end. (AO Smith, No. 20 at p.3)

The Joint Utilities comment pointed out that a number of regulatory proceedings at the state level led to utilities being required under state regulation to terminate programs where the utility was active in the sale of an appliance to the consumer. (Joint Utilities, No. 58 at p. 18) The Joint Utilities comment stated that if DOE appears to be reinstating utility appliance programs, it

would be running afoul of years of state regulations and legislation, which would inevitably lead to litigation. (Joint Utilities, No. 58 at p. 18)

As noted above, several utility company commenters, while preferring the product class approach discussed in section III.A.3, indicated that the waiver option could potentially be a viable solution. (East River, No. 25 at p. 3; Lyon-Lincoln, No. 27 at p. 3; Bristol, No. 31 at p. 2; Corn Belt, No. 39 at p. 3; Otter Tail, No. 44 at p. 5) Otter Tail stated that although they are open to the concept of the waiver option, not all utilities' business models support the business of selling appliances and for the most part utilities do not compete with other retail businesses. (Otter Tail, No. 44 at p. 3) Two utilities stated that they sell water heaters directly to their participants. (Eau Claire, No. 69 at p. 2; Bristol, No. 31 at p. 2) Dakota Electric commented that after unsuccessfully trying to sell small numbers of Rheem "Marathon" water heaters, Dakota Electric partnered with an independent small business water heater distributor that handles all of their member-owners' water heater supply needs. Dakota Electric stated that returning to small volume sales and the associated internal overhead costs, delivery and warranty problems would drive up the price to member-owners. (Dakota Electric, No. 36 at p. 4)

After considering the comments on the waiver process, DOE has tentatively concluded that a waiver system would achieve DOE's goal of mitigating the impacts of the April 2010 final rule on utility ETS programs, while also being allowable under EPCA. A waiver process will address the concerns raised by utility companies and has the added benefit of having the potential for frequent evaluation. Thus, DOE is proposing in this NPRM to establish a waiver system for large-volume electric storage water heaters. The waiver, if granted, would allow, for a one-year period, manufacturers to produce limited numbers of electric water heaters with storage volumes above 55 gallons exclusively for the purpose of installation in residences enrolled in a

utility company electric thermal storage (ETS) program. Parties would be allowed to apply for additional one-year waivers in subsequent years. The proposed criteria and method for petitioning for a waiver, and the proposed requirements that any granted waivers will impose are discussed in section 0.

DOE recognizes the concerns of certain stakeholders with regard to the establishment of a waiver program. In particular, DOE believes that manufacturers, the Joint Utilities, and other utility companies made compelling arguments regarding the lack of control of the distribution chain, as well as local regulations that may prevent certain utilities from selling water heaters directly to consumers. For these reasons, DOE's proposed waiver program will not include any requirements that the manufacturer sell directly to the utility, or that the utility sell the units covered under waiver directly to the consumer. Also, recognizing that situations may occur where new homeowners move into a residence with a grid-interactive water heater installed but do not wish to participate in an ETS program or where a consumer purchases a water heater for use in an ETS program but later decides not to participate, DOE is not including in its waiver program any criterion that the homeowner have an agreement to be enrolled in a utility ETS program. Rather, DOE is including other requirements to ensure that the waiver program is targeted, including an annual limit on the number of units to which the waiver will apply and a requirement that the water heater be shipped with the control device that will be used for the ETS program. These requirements are discussed further in section III.B.2.

In response to the comment from NEEA, NPCC, and BPA stating that DOE must consider the economic impacts of any waiver that is granted, DOE agrees that an economic analysis may provide helpful information in determining whether to grant a waiver, but also

believes it may be infeasible to individually calculate the economic benefits for every waiver request received depending on the volume of requests.

B. Waiver Process

Any waiver process established by DOE must include a clear procedure for obtaining a waiver, with guidelines for circumstances under which the waiver will be granted, instructions regarding how to apply for and document the waiver, and a description of conditions that must be met for the waiver to be granted. The following sections describe the waiver process that DOE proposes to establish, including the criteria necessary to obtain a waiver, the requirements that must be met to comply with the waiver, and a process for reviewing the waiver to ensure its effectiveness in addressing the issue at hand.

1. Criteria for Obtaining a Waiver

In order to obtain a waiver that would allow for the manufacture and sale of limited numbers of electric water heaters with storage volumes above 55 gallons for a one year period exclusively for the purpose of installation in residences enrolled in a utility company ETS program, DOE proposes that manufacturers and/or utility companies, or a utility company and a manufacturer jointly, must request such a waiver from DOE. Further, the request must come from a manufacturer of water heaters and/or a utility company that administers an electric thermal storage program utilizing large-volume electric water heaters. No other parties may apply for a waiver. If the request is made individually by a manufacturer, it must identify each of the utility ETS programs for which the water heaters are intended to participate. Similarly, if the request is made by a utility, it must identify the manufacturer that would be responsible for producing the units.

To request an exception from the DOE energy conservation standards for residential water heaters, a manufacturer and/or utility company must submit a letter to the Assistant Secretary for Energy Efficiency and Renewable Energy detailing the waiver request. Descriptions of how to petition for the waiver, the information that should be contained in the request, and additional requirements that must be met if the waiver is granted are discussed in section 2.

2. Requirements and Method for Obtaining Waiver

DOE proposes that, if a manufacturer and/or utility company believes that it (they) can meet these requirements, in order to receive a waiver it (they) must first submit a letter to the Assistant Secretary for Energy Efficiency and Renewable Energy requesting that a waiver be granted. The waiver request should include the petitioning company contact information. If the application is filed jointly, it must contain contact information for all parties. If not filed jointly, the request must contain information about any additional entity (i.e., manufacturer or utility) that will be a party to the waiver.

Second, the waiver should include the model information (manufacturer, brand, basic model number, rated storage volumes and energy factor for each basic model that the manufacturer plans to produce and the utility plans to use in an ETS program coinciding with the DOE certification record). In addition, the application must include a list of the utility names that administer each of the ETS programs for which the basic models subject to the waiver application will be utilized and the specific number of units for each ETS program which exemption from the standards is requested. The utility company that is a party to the request must submit information on the current stock of ERWHs in their ETS programs and any planned expansion of the programs that would justify the number of units requested to be covered by

waiver. DOE proposes to limit the number of units for which the waiver would apply annually to reduce the likelihood of significant numbers of large-volume ERWHs being used in applications without ETS programs.

The waiver request must also include a description of the control device that will be used to control any potentially waiver-covered water heaters for the ETS program. The control device must be capable of receiving communication from a grid operator, electric utility, or other energy services company that provides real-time control of the heating element.

Upon reviewing the application, DOE will determine whether to grant the waiver. If such determination is positive, DOE will specify the residential water heater basic model (or models) that the waiver applies to and the number of units that are covered under the waiver, as well as the expiration date of that waiver. DOE will also specify an alternative minimum energy conservation standard that would apply to any models covered under waiver. DOE will notify the petitioner(s) in writing and the public through publication of a Federal Register notice once a decision is made regarding the status of a waiver request. DOE proposes the waiver would expire one calendar year after it is granted, after which time it will not be applicable. Consequently, if a manufacturer and/or utility company would like to continue the waiver for a longer period, DOE proposes that a new waiver application would need to be submitted each year to ensure a continued evaluation of the waivers.

In addition, DOE believes that in order to effectively enforce this waiver program, DOE must have some means of physically distinguishing between water heaters for ETS programs and other electric resistance water heaters. In order to ensure that water heaters manufactured under a waiver are intended for use in ETS programs and encourage their use in ETS programs, DOE

proposes to require that the units for which a waiver is granted are shipped from the manufacturer with the ETS control device installed on the water heater or packaged with the water heater. DOE is aware that currently the control mechanism is typically provided by a third party manufacturer (i.e., a manufacturer other than the water heater manufacturer) and is often installed by the utility company or a contractor to the utility company rather than the water heater original equipment manufacturer. In addition, DOE recognizes the concerns stated earlier in this document that there are a number of different control devices available, which may present difficulties to water heater manufacturers in installing these devices at the factory. However, DOE believes that without the control device being installed at the point of water heater manufacture, it would be difficult to ensure that the unit is intended for use in an ETS program. In order to enforce the provisions of the waiver, DOE believes that the control device must be present on all units subject to the waiver when they leave the water heater manufacturer, and thus proposes to include this requirement as a condition of any waivers that may be granted under this process. No consideration will be given to add-on control devices for ETS programs that are to be installed in the field as an addition to a traditional ERWH. DOE requests comment on this proposal, and this is identified as issue 1 in section V.E, “Issues on Which DOE Seeks Comment.”

In summary, to apply for a waiver, DOE proposes that a manufacturer and/or utility must submit a request to DOE that includes the following information: 1) contact and company information for all parties involved in the waiver request (including both the manufacturer of the water heaters and the utilities administering the ETS program); 2) number of units of a given basic model broken down by utility for which the waiver is requested; 3) specific information about the water heaters, including manufacturer, brand, basic model number, rated storage

volume, and energy factor ; and 4) a description of the control device to be used on the water heaters and documentation of the integration of that control device into the water heater design if the waiver is granted. If DOE grants the waiver, as a condition of the waiver, DOE proposes that the covered water heaters leave the manufacturer with the ETS control device installed on the water heater or packaged with the water heater.

3. Periodic Review of Waiver Mechanism

DOE believes that a critical component of the waiver process proposed in this NPRM will be periodic reviews of the waiver mechanism to ensure that it is achieving its goals of serving its intended purpose while limiting the potential for circumvention of the April 2010 energy conservation standards for products not used in ETS programs. Periodic reviews will allow DOE to assess any new technologies that are available on the market and to evaluate whether the concerns of utility companies are still valid in light of any new information or products on the market that may become available. In addition, periodic reviews would account for any new technologies that make products meeting DOE's energy conservation standards appropriate for use in ETS programs.

DOE believes that its proposal that each granted waiver will be applicable for only one year creates a de facto review period. As waivers expire and manufacturers and/or utility companies must apply for new waivers, DOE will re-evaluate any previous decisions made under this process. DOE also plans to review the waiver process each year. In order to conduct these evaluations, DOE is proposing to implement the suggestion contained in the Joint Utilities supplemental comment (discussed previously in section 3) that a question be added to forms EIA-861 and EIA-861S that tracks the number of models that are actually installed in utility ETS applications. (Joint Utilities Supplemental, No.156 at p.1) This information would allow DOE to

compare the number of units for which a waiver is granted to the number actually installed in ETS applications each year to ensure that this process achieves its goals. DOE proposes to include with minor modifications the additional question on forms EIA-861 and EIA-861S suggested by the Joint Utilities. Rather than ask how many grid-interactive water heaters were added to each program this/last year, as proposed by the Joint Utilities, DOE proposes to include a question that asks for the total number of water heaters enrolled in a given ETS program. The question DOE proposes to add would read as follows: “If you have a demand side management (DSM) program for electric storage water heaters, how many electric storage water heaters with storage volumes above 55 gallons were utilized in your program this/last year?” DOE seeks comment on its proposal to add this question to forms EIA-861 and EIA-861S, and this is identified as issue 2 in section V.E, “Issues on Which DOE Seeks Comment.”

At the time of each review, DOE can update the waiver process, if necessary, through a notice and comment rulemaking to amend the criteria and requirements to comply with the waiver. Similarly, if new technologies come to market or new information comes to light that mitigate the concerns raised by utility companies to date (e.g., a product that meets DOE minimum energy conservation standards and is suitable for utility ETS programs), DOE could discontinue the granting of waivers if justified.

IV. Procedural Requirements

A. Review Under Executive Orders 12866 and 13563

Section 1(b)(1) of Executive Order 12866, “Regulatory Planning and Review,” 58 FR 51735 (Oct. 4, 1993), requires each agency to identify the problem that it intends to address,

including, where applicable, the failures of private markets or public institutions that warrant new agency action, as well as to assess the significance of that problem. The problems that today's standards address are as follows:

- 1) There is a lack of consumer information and/or information processing capability about energy efficiency opportunities in the home appliance market.
- 2) There is asymmetric information (one party to a transaction has more and better information than the other) and/or high transactions costs (costs of gathering information and effecting exchanges of goods and services).
- 3) There are external benefits resulting from improved energy efficiency of residential water heaters that are not captured by the users of such equipment. These benefits include externalities related to environmental protection and energy security that are not reflected in energy prices, such as reduced emissions of greenhouse gases.

In addition, this regulatory action is not an “economically significant regulatory action” under section 3(f)(1) of Executive Order 12866. Accordingly, DOE is not required under section 6(a)(3) of the Executive Order to prepare a regulatory impact analysis (RIA) on this NPRM and the Office of Information and Regulatory Affairs (OIRA) in the Office of Management and Budget (OMB) is not required to review this rule.

DOE has also reviewed this regulation pursuant to Executive Order 13563, issued on January 18, 2011 (76 FR 3281, Jan. 21, 2011). EO 13563 is supplemental to and explicitly reaffirms the principles, structures, and definitions governing regulatory review established in Executive Order 12866. To the extent permitted by law, agencies are required by Executive Order 13563 to: 1) propose or adopt a regulation only upon a reasoned determination that its

benefits justify its costs (recognizing that some benefits and costs are difficult to quantify); 2) tailor regulations to impose the least burden on society, consistent with obtaining regulatory objectives, taking into account, among other things, and to the extent practicable, the costs of cumulative regulations; 3) select, in choosing among alternative regulatory approaches, those approaches that maximize net benefits (including potential economic, environmental, public health and safety, and other advantages; distributive impacts; and equity); 4) to the extent feasible, specify performance objectives, rather than specifying the behavior or manner of compliance that regulated entities must adopt; and 5) identify and assess available alternatives to direct regulation, including providing economic incentives to encourage the desired behavior, such as user fees or marketable permits, or providing information upon which choices can be made by the public.

DOE emphasizes as well that Executive Order 13563 requires agencies to use the best available techniques to quantify anticipated present and future benefits and costs as accurately as possible. In its guidance, the Office of Information and Regulatory Affairs has emphasized that such techniques may include identifying changing future compliance costs that might result from technological innovation or anticipated behavioral changes. For the reasons stated in the preamble, DOE believes that this NPRM is consistent with these principles, including the requirement that, to the extent permitted by law, benefits justify costs and that net benefits are maximized.

B. Review Under the Regulatory Flexibility Act

The Regulatory Flexibility Act (5 U.S.C. 601 et seq.) requires preparation of a regulatory flexibility analysis for any rule that by law must be proposed for public comment, unless the agency certifies that the rule, if promulgated, will not have a significant economic impact on a

substantial number of small entities. As required by Executive Order 13272, “Proper Consideration of Small Entities in Agency Rulemaking,” 67 FR 53461 (August 16, 2002), DOE published procedures and policies on February 19, 2003, to ensure that the potential impacts of its rules on small entities are properly considered during the rulemaking process. 68 FR 7990. DOE has made its procedures and policies available on the Office of the General Counsel’s website (<http://energy.gov/gc/office-general-counsel>).

In this notice, DOE is not proposing to amend the existing energy conservation standards for residential water heaters to adopt more stringent levels, but rather is proposing a waiver process that would allow, for a one-year period, manufacturers to produce limited numbers of electric water heaters with storage volumes above 55 gallons exclusively for the purpose of installation in residences enrolled in a utility company electric thermal storage (ETS) program.

For manufacturers of residential water heaters, the Small Business Administration (SBA) has set a size threshold, which defines those entities classified as “small businesses” for the purposes of the statute. DOE used the SBA’s small business size standards to determine whether any small entities would be subject to the requirements of the rule. 13 CFR part 121. The size standards are listed by North American Industry Classification System (NAICS) code and industry description and are available at http://www.sba.gov/sites/default/files/files/Size_Standards_Table.pdf. Residential water heater manufacturing is classified under NAICS 335228 – “Other Major Household Appliance Manufacturing.” The SBA sets a threshold of 500 employees or less for an entity to be considered as a small business for this category. DOE has identified one small business manufacturer of electric storage water heaters.

DOE does not expect that this proposed rule, if adopted, would have a significant impact on any small business manufacturers. The proposed waiver process does impose several requirements, including that manufacturers may have to apply for the waiver (unless they are part of a joint application in which a utility company is submitting the application), and will be responsible for ensuring that the control device is installed on any water heaters that are manufactured under a waiver. DOE expects the impact of both of these requirements to be minimal for all manufacturers. In addition, DOE believes it is reasonable to assume that because the waiver process is optional, these potential benefits outweigh the small burdens of obtaining a waiver, as manufacturers would otherwise not opt to participate in the waiver process. Thus, DOE certifies that waiver process set forth in this proposed rule, if promulgated, would not have a significant economic impact on a substantial number of small entities. Accordingly, DOE has not prepared a regulatory flexibility analysis for this rulemaking. DOE will transmit the certification and supporting statement of factual basis to the Chief Counsel for Advocacy of the Small Business Administration for review under 5 U.S.C. 605(b).

DOE requests comment on its above conclusions, as well as any information concerning small businesses that could be impacted by this rulemaking and the nature and extent of those potential impacts of the proposed waiver process on small residential water heater manufacturers. This is identified as issue 3 in section V.E, “Issues on Which DOE Seeks Comment.”

C. Review Under the Paperwork Reduction Act

Manufacturers of residential water heaters must certify to DOE that their products comply with any applicable energy conservation standards. In certifying compliance, manufacturers must test their products according to the DOE test procedures for residential water

heaters, including any amendments adopted for those test procedures. DOE has established regulations for the certification and recordkeeping requirements for all covered consumer products and commercial equipment, including residential water heaters. 76 FR 12422 (March 7, 2011). The collection-of-information requirement for the certification and recordkeeping is subject to review and approval by OMB under the Paperwork Reduction Act (PRA). Public reporting burden for the certification is estimated to average 4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

Notwithstanding any other provision of the law, no person is required to respond to, nor shall any person be subject to a penalty for failure to comply with, a collection of information subject to the requirements of the PRA, unless that collection of information displays a currently valid OMB Control Number.

D. Review Under the National Environmental Policy Act of 1969

Pursuant to the National Environmental Policy Act (NEPA) of 1969, DOE has determined that the proposed rule fits within the category of actions included in Categorical Exclusion (CX) B5.1 and otherwise meets the requirements for application of a CX. See 10 CFR Part 1021, App. B, B5.1(b); 1021.410(b) and Appendix B, B(1)-(5). The proposed rule fits within the category of actions because it is a rulemaking that establishes a waiver process that would allow, for a one-year period, manufacturers to produce limited numbers of electric water heaters with storage volumes above 55 gallons exclusively for the purpose of installation in residences enrolled in a utility company electric thermal storage (ETS) program. DOE has determined that none of the exceptions identified in CX B5.1(b) apply. Therefore, DOE has made a CX determination for this rulemaking, and DOE does not need to prepare an

Environmental Assessment or Environmental Impact Statement for this proposed rule. DOE's CX determination for this proposed rule is available at <http://cxnepa.energy.gov/>.

E. Review Under Executive Order 13132

Executive Order 13132, "Federalism," 64 FR 43255 (Aug. 10, 1999) imposes certain requirements on Federal agencies formulating and implementing policies or regulations that preempt State law or that have Federalism implications. The Executive Order requires agencies to examine the constitutional and statutory authority supporting any action that would limit the policymaking discretion of the States and to carefully assess the necessity for such actions. The Executive Order also requires agencies to have an accountable process to ensure meaningful and timely input by State and local officials in the development of regulatory policies that have Federalism implications. On March 14, 2000, DOE published a statement of policy describing the intergovernmental consultation process it will follow in the development of such regulations. 65 FR 13735. EPCA governs and prescribes Federal preemption of State regulations as to energy conservation for the products that are the subject of this proposed rule. States can petition DOE for exemption from such preemption to the extent, and based on criteria, set forth in EPCA. (42 U.S.C. 6297) No further action is required by Executive Order 13132.

F. Review Under Executive Order 12988

With respect to the review of existing regulations and the promulgation of new regulations, section 3(a) of Executive Order 12988, "Civil Justice Reform," imposes on Federal agencies the general duty to adhere to the following requirements: 1) eliminate drafting errors and ambiguity; 2) write regulations to minimize litigation; and 3) provide a clear legal standard for affected conduct rather than a general standard and promote simplification and burden reduction. 61 FR 4729 (Feb. 7, 1996). Section 3(b) of Executive Order 12988 specifically

requires that Executive agencies make every reasonable effort to ensure that the regulation: 1) clearly specifies the preemptive effect, if any; 2) clearly specifies any effect on existing Federal law or regulation; 3) provides a clear legal standard for affected conduct while promoting simplification and burden reduction; 4) specifies the retroactive effect, if any; 5) adequately defines key terms; and 6) addresses other important issues affecting clarity and general draftsmanship under any guidelines issued by the Attorney General. Section 3(c) of Executive Order 12988 requires Executive agencies to review regulations in light of applicable standards in section 3(a) and section 3(b) to determine whether they are met or it is unreasonable to meet one or more of them. DOE has completed the required review and determined that, to the extent permitted by law, this proposed rule meets the relevant standards of Executive Order 12988.

G. Review Under the Unfunded Mandates Reform Act of 1995

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA) requires each Federal agency to assess the effects of Federal regulatory actions on State, local, and Tribal governments and the private sector. Pub. L. 104-4, sec. 201 (codified at 2 U.S.C. 1531). For a proposed regulatory action likely to result in a rule that may cause the expenditure by State, local, and Tribal governments, in the aggregate, or by the private sector of \$100 million or more in any one year (adjusted annually for inflation), section 202 of UMRA requires a Federal agency to publish a written statement that estimates the resulting costs, benefits, and other effects on the national economy. (2 U.S.C. 1532(a), (b)) The UMRA also requires a Federal agency to develop an effective process to permit timely input by elected officers of State, local, and Tribal governments on a proposed “significant intergovernmental mandate,” and requires an agency plan for giving notice and opportunity for timely input to potentially affected small governments before establishing any requirements that might significantly or uniquely affect small

governments. On March 18, 1997, DOE published a statement of policy on its process for intergovernmental consultation under UMRA. 62 FR 12820. DOE's policy statement is also available at <http://energy.gov/gc/office-general-counsel>.

This proposed rule does not contain a Federal intergovernmental mandate, and it will not require expenditures of \$100 million or more by State, local, and Tribal governments, in the aggregate, or by the private sector.. Accordingly, no further action is required under the UMRA.

H. Review Under the Treasury and General Government Appropriations Act, 1999

Section 654 of the Treasury and General Government Appropriations Act, 1999 (Pub. L. 105-277) requires Federal agencies to issue a Family Policymaking Assessment for any rule that may affect family well-being. This rule would not have any impact on the autonomy or integrity of the family as an institution. Accordingly, DOE has concluded that it is not necessary to prepare a Family Policymaking Assessment.

I. Review Under Executive Order 12630

DOE has determined, under Executive Order 12630, "Governmental Actions and Interference with Constitutionally Protected Property Rights" 53 FR 8859 (Mar. 18, 1988), that this regulation would not result in any takings that might require compensation under the Fifth Amendment to the U.S. Constitution.

J. Review Under the Treasury and General Government Appropriations Act, 2001

Section 515 of the Treasury and General Government Appropriations Act, 2001 (44 U.S.C. 3516, note) provides for Federal agencies to review most disseminations of information to the public under guidelines established by each agency pursuant to general guidelines issued by OMB. OMB's guidelines were published at 67 FR 8452 (Feb. 22, 2002), and DOE's

guidelines were published at 67 FR 62446 (Oct. 7, 2002). DOE has reviewed this NPRM under the OMB and DOE guidelines and has concluded that it is consistent with applicable policies in those guidelines.

K. Review Under Executive Order 13211

Executive Order 13211, “Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use” 66 FR 28355 (May 22, 2001), requires Federal agencies to prepare and submit to OIRA at OMB, a Statement of Energy Effects for any proposed significant energy action. A “significant energy action” is defined as any action by an agency that promulgates or is expected to lead to promulgation of a final rule, and that: 1) is a significant regulatory action under Executive Order 12866, or any successor order; and 2) is likely to have a significant adverse effect on the supply, distribution, or use of energy, or 3) is designated by the Administrator of OIRA as a significant energy action. For any proposed significant energy action, the agency must give a detailed statement of any adverse effects on energy supply, distribution, or use should the proposal be implemented, and of reasonable alternatives to the action and their expected benefits on energy supply, distribution, and use.

DOE has tentatively concluded that this regulatory action, which sets forth a waiver process for energy conservation standards for residential water heaters, is not a significant energy action because the proposed waiver process is not likely to have a significant adverse effect on the supply, distribution, or use of energy, nor has it been designated as such by the Administrator at OIRA. Accordingly, DOE has not prepared a Statement of Energy Effects on the proposed rule.

L. Review Under the Information Quality Bulletin for Peer Review

On December 16, 2004, OMB, in consultation with the Office of Science and Technology Policy (OSTP), issued its Final Information Quality Bulletin for Peer Review (the Bulletin). 70 FR 2664 (Jan. 14, 2005). The Bulletin establishes that certain scientific information shall be peer reviewed by qualified specialists before it is disseminated by the Federal Government, including influential scientific information related to agency regulatory actions. The purpose of the bulletin is to enhance the quality and credibility of the Government's scientific information. Under the Bulletin, the energy conservation standards rulemaking analyses are "influential scientific information," which the Bulletin defines as scientific information the agency reasonably can determine will have, or does have, a clear and substantial impact on important public policies or private sector decisions. 70 FR 2667.

In response to OMB's Bulletin, DOE conducted formal in-progress peer reviews of the energy conservation standards development process and analyses and has prepared a Peer Review Report pertaining to the energy conservation standards rulemaking analyses. Generation of this report involved a rigorous, formal, and documented evaluation using objective criteria and qualified and independent reviewers to make a judgment as to the technical/scientific/business merit, the actual or anticipated results, and the productivity and management effectiveness of programs and/or projects. The "Energy Conservation Standards Rulemaking Peer Review Report" dated February 2007 has been disseminated and is available at the following Web site: www1.eere.energy.gov/buildings/appliance_standards/peer_review.html.

V. Public Participation

A. Attendance at the Public Meeting

The time, date, and location of the public meeting are listed in the DATES and ADDRESSES sections at the beginning of this notice. If you plan to attend the public meeting, please notify Ms. Brenda Edwards at (202) 586-2945 or Brenda.Edwards@ee.doe.gov. As explained in the ADDRESSES section, foreign nationals visiting DOE Headquarters are subject to advance security screening procedures. Any foreign national wishing to participate in the meeting should advise DOE of this fact as soon as possible by contacting Ms. Brenda Edwards to initiate the necessary procedures.

In addition, you can attend the public meeting via webinar. Webinar registration information, participant instructions, and information about the capabilities available to webinar participants will be published on DOE's website at:

http://www1.eere.energy.gov/buildings/appliance_standards/residential/waterheaters.html.

Participants are responsible for ensuring their systems are compatible with the webinar software.

B. Procedure for Submitting Requests to Speak and Prepared General Statements for Distribution

Any person who has an interest in the topics addressed in this notice, or who is representative of a group or class of persons that has an interest in these issues, may request an opportunity to make an oral presentation at the public meeting. Such persons may hand-deliver requests to speak to the address shown in the **ADDRESSES** section at the beginning of this notice between 9:00 a.m. and 4:00 p.m., Monday through Friday, except Federal holidays. Requests may also be sent by mail or email to: Ms. Brenda Edwards, U.S. Department of Energy, Building Technologies Program, Mailstop EE-2J, 1000 Independence Avenue, SW,

Washington, DC 20585-0121, or Brenda.Edwards@ee.doe.gov. Persons who wish to speak should include with their request a computer diskette or CD-ROM in WordPerfect, Microsoft Word, PDF, or text (ASCII) file format that briefly describes the nature of their interest in this rulemaking and the topics they wish to discuss. Such persons should also provide a daytime telephone number where they can be reached.

DOE requests persons scheduled to make an oral presentation to submit an advance copy of their statements at least one week before the public meeting. DOE may permit persons who cannot supply an advance copy of their statement to participate, if those persons have made advance alternative arrangements with the Building Technologies Program. As necessary, requests to give an oral presentation should ask for such alternative arrangements.

C. Conduct of the Public Meeting

DOE will designate a DOE official to preside at the public meeting and may also use a professional facilitator to aid discussion. The meeting will not be a judicial or evidentiary-type public hearing, but DOE will conduct it in accordance with section 336 of EPCA (42 U.S.C. 6306). A court reporter will be present to record the proceedings and prepare a transcript. DOE reserves the right to schedule the order of presentations and to establish the procedures governing the conduct of the public meeting. There shall not be discussion of proprietary information, costs or prices, market share, or other commercial matters regulated by U.S. anti-trust laws. After the public meeting, interested parties may submit further comments on the proceedings as well as on any aspect of the rulemaking until the end of the comment period.

The public meeting will be conducted in an informal, conference style. DOE will present summaries of comments received before the public meeting, allow time for prepared general

statements by participants, and encourage all interested parties to share their views on issues affecting this rulemaking. Each participant will be allowed to make a general statement (within time limits determined by DOE), before the discussion of specific topics. DOE will allow, as time permits, other participants to comment briefly on any general statements.

At the end of all prepared statements on a topic, DOE will permit participants to clarify their statements briefly and comment on statements made by others. Participants should be prepared to answer questions by DOE and by other participants concerning these issues. DOE representatives may also ask questions of participants concerning other matters relevant to this rulemaking. The official conducting the public meeting will accept additional comments or questions from those attending, as time permits. The presiding official will announce any further procedural rules or modification of the above procedures that may be needed for the proper conduct of the public meeting.

A transcript of the public meeting will be included in the docket, which can be viewed as described in the Docket section at the beginning of this NPRM and will be accessible on the DOE website. In addition, any person may buy a copy of the transcript from the transcribing reporter.

D. Submission of Comments

DOE will accept comments, data, and information regarding this proposed rule before or after the public meeting, but no later than the date provided in the DATES section at the beginning of this proposed rule. Interested parties may submit comments, data, and other information using any of the methods described in the ADDRESSES section at the beginning of this NPRM.

Submitting comments via regulations.gov. The regulations.gov web page will require you to provide your name and contact information. Your contact information will be viewable to DOE Building Technologies staff only. Your contact information will not be publicly viewable except for your first and last names, organization name (if any), and submitter representative name (if any). If your comment is not processed properly because of technical difficulties, DOE will use this information to contact you. If DOE cannot read your comment due to technical difficulties and cannot contact you for clarification, DOE may not be able to consider your comment.

However, your contact information will be publicly viewable if you include it in the comment itself or in any documents attached to your comment. Any information that you do not want to be publicly viewable should not be included in your comment, nor in any document attached to your comment. Otherwise, persons viewing comments will see only first and last names, organization names, correspondence containing comments, and any documents submitted with the comments.

Do not submit to regulations.gov information for which disclosure is restricted by statute, such as trade secrets and commercial or financial information (hereinafter referred to as Confidential Business Information (CBI)). Comments submitted through regulations.gov cannot be claimed as CBI. Comments received through the website will waive any CBI claims for the information submitted. For information on submitting CBI, see the Confidential Business Information section below.

DOE processes submissions made through regulations.gov before posting. Normally, comments will be posted within a few days of being submitted. However, if large volumes of

comments are being processed simultaneously, your comment may not be viewable for up to several weeks. Please keep the comment tracking number that regulations.gov provides after you have successfully uploaded your comment.

Submitting comments via email, hand delivery/courier, or mail. Comments and documents submitted via email, hand delivery, or mail also will be posted to regulations.gov. If you do not want your personal contact information to be publicly viewable, do not include it in your comment or any accompanying documents. Instead, provide your contact information in a cover letter. Include your first and last names, email address, telephone number, and optional mailing address. The cover letter will not be publicly viewable as long as it does not include any comments

Include contact information each time you submit comments, data, documents, and other information to DOE. If you submit via mail or hand delivery/courier, please provide all items on a CD, if feasible, in which case it is not necessary to submit printed copies. No telefacsimiles (faxes) will be accepted.

Comments, data, and other information submitted to DOE electronically should be provided in PDF (preferred), Microsoft Word or Excel, WordPerfect, or text (ASCII) file format. Provide documents that are not secured, that are written in English, and that are free of any defects or viruses. Documents should not contain special characters or any form of encryption and, if possible, they should carry the electronic signature of the author.

Campaign form letters. Please submit campaign form letters by the originating organization in batches of between 50 to 500 form letters per PDF or as one form letter with a

list of supporters' names compiled into one or more PDFs. This reduces comment processing and posting time.

Confidential Business Information. Pursuant to 10 CFR 1004.11, any person submitting information that he or she believes to be confidential and exempt by law from public disclosure should submit via email, postal mail, or hand delivery/courier two well-marked copies: one copy of the document marked confidential including all the information believed to be confidential, and one copy of the document marked non-confidential with the information believed to be confidential deleted. Submit these documents via email or on a CD, if feasible. DOE will make its own determination about the confidential status of the information and treat it according to its determination.

Factors of interest to DOE when evaluating requests to treat submitted information as confidential include: 1) A description of the items; 2) whether and why such items are customarily treated as confidential within the industry; 3) whether the information is generally known by or available from other sources; 4) whether the information has previously been made available to others without obligation concerning its confidentiality; 5) an explanation of the competitive injury to the submitting person which would result from public disclosure; 6) when such information might lose its confidential character due to the passage of time; and 7) why disclosure of the information would be contrary to the public interest.

It is DOE's policy that all comments may be included in the public docket, without change and as received, including any personal information provided in the comments (except information deemed to be exempt from public disclosure).

E. Issues on Which DOE Seeks Comment

Although DOE welcomes comments on any aspect of this proposal, DOE is particularly interested in receiving comments and views of interested parties concerning the following issues:

1. DOE's proposal to require that the units for which a waiver is granted are shipped from the manufacturer with the ETS control device installed on the water heater.

2. DOE's proposal to add a question to forms EIA-861 and EIA-861S that would read as follows: "If you have a demand side management (DSM) program for electric storage water heaters, how many electric storage water heaters with storage volumes above 55 gallons were utilized in your program this/last year?"

3. DOE's conclusion that the proposed waiver process will not have significant adverse impacts on a substantial number of small business manufacturers. DOE also seeks any information concerning small businesses that could be impacted by this rulemaking and the nature and extent of those potential impacts of the proposed waiver process on small residential water heater manufacturers.

VI. Approval of the Office of the Secretary

The Secretary of Energy has approved publication of this notice of proposed rulemaking.

List of Subjects in 10 CFR Part 430

Administrative practice and procedure, Confidential business information, Energy conservation, Household appliances, Imports, Intergovernmental relations, Reporting and recordkeeping requirements, and Small businesses.

Issued in Washington, DC, on February 15, 2013.

David T. Danielson
Assistant Secretary
Energy Efficiency and Renewable Energy

For the reasons set forth in the preamble, DOE proposes to amend part 430 of chapter II, subchapter D, of title 10 of the Code of Federal Regulations, as set forth below:

PART 430—ENERGY CONSERVATION PROGRAM FOR CONSUMER PRODUCTS

1. The authority citation for part 430 continues to read as follows:

Authority: 42 U.S.C. 6291–6309; 28 U.S.C. 2461 note.

2. Add § 430.36 to read as follows:

§ 430.36 Petitions for waiver for electric water heaters used in electric thermal storage programs.

(a) Any manufacturer of residential water heaters or utility company that administers an electric thermal storage program for electric water heaters, or combination of these two, may submit a petition to allow, for a one-year period, manufacturers to produce limited numbers of electric water heaters with rated storage volumes above 55 gallons exclusively for the purpose of installation in residences enrolled in a utility company electric thermal storage (ETS) program.

(b) A petition for waiver shall be submitted to the Assistant Secretary for Energy Efficiency and Renewable Energy, United States Department of Energy by email. Each petition for waiver shall:

- (1) Identify the company or companies, whether manufacturer or utility company or combination of the two, requesting the waiver, and provide contact information (i.e., name of company official, address for the applicant, phone number, and email address) for those entities. Note, if the manufacturer is applying for the waiver, it should include a list of all utility companies administering the ETS programs to

- which it plans to sell the basic models. If the utility is applying for the waiver, the utility should include a list of all of the manufacturers from which it plans to purchase electric water heaters with rated storage volumes above 55 gallons exclusively for the purpose of installation in residences enrolled in a utility company electric thermal storage (ETS) program.
- (2) Identify the particular manufacturer, brand, basic model(s), rated storage volume, and energy factor for which a waiver is requested.
 - (3) Identify the number of units per utility program on an annual basis for each of the basic models for which a waiver is requested (i.e., total number of units per year of a given basic model that will be participating in an ETS program for a specific utility).
 - (4) Provide information from the utility company regarding the current stock of electric water heaters used in the electric thermal storage programs at the time the waiver is submitted and any planned expansion of the programs for the annual period the waiver will cover that would justify the number of units requested to be covered by waiver.
 - (5) Identify and describe the control device that will be installed on the unit. The control device must be capable of receiving communication from a grid operator, electric utility, or other energy services company that provides real-time control of the heating element. Provide documentation that the control device is integrated into the water heater design at the point of manufacture, including but not limited to any marketing and labeling material from the manufacturer describing the basic model(s) for which the waiver is requested.

(6) Be signed by a company official. In accordance with the provisions set forth in 10 CFR 1004.11, any request for confidential treatment of any information contained in a petition for waiver or in supporting documentation must be accompanied by a copy of the petition, application or supporting documentation from which the information claimed to be confidential has been deleted. DOE shall publish in the Federal Register the petition and supporting documents from which confidential information, as determined by DOE, has been deleted in accordance with 10 CFR 1004.11.

(c) The Assistant Secretary for Energy Efficiency and Renewable Energy shall issue a decision on the petition as soon as is practicable following receipt and review of the petition for waiver and other applicable documents. The Assistant Secretary for Energy Efficiency and Renewable Energy will grant a waiver upon determining that the basic model for which the waiver was requested is particularly well suited for use in the electric thermal storage program, the requester or combination of requesters is an appropriate party to be granted such a waiver, the quantity of units to be manufactured under the waiver is sufficiently limited, and that an appropriate control device will be present on any water heaters manufactured and shipped pursuant to a waiver. Manufacture of units authorized by a waiver granted under this section will not constitute violations of an applicable energy conservation standard, provided that the units are distributed and installed in accordance with the terms of the waiver.

(d) Any granted waiver will specify the manufacturer, utilities, brand, basic model number, number of units of a particular basic model and the applicable energy conservation standard for units authorized by the waiver. Any granted waiver will terminate 365 days after issuance.

(e) Any basic model for which a waiver has been granted shall be shipped from the water heater original equipment manufacturer with a control device that is compatible with the utility company administered electric thermal storage program. Any changes to the basic model design which results in the unit consuming more energy or alters the control device from which the waiver was granted shall require a new waiver application. The control device must be installed on the water heater before it leaves the original equipment manufacturer. The control device must be capable of receiving communication from a grid operator, electric utility, or other energy services company that provides real-time control of the heating element. The water heater must be clearly labeled and marketed for use exclusively in ETS programs, including a description of the control device integrated into the water heater, before it leaves the original equipment manufacturer.

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